



Federation of Earth Science
Information Partners

MAKING DATA MATTER

January 06, 2011

2011 ESIP WINTER MEETING WASHINGTON, DC

Jim Geringer

Wyoming Governor 1995-2003

Director, Policy & Public Sector Strategy



THANK YOU!



[illegible]

“Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond” - NRC (2007)



“The committee found that fundamental improvements are needed in existing observation and information systems because they only loosely connect three key elements:

- - the **raw observations** that produce information;**
- - the analyses, forecasts, and models that provide timely and coherent **syntheses** of otherwise disparate information; and**
- - the **decision processes** that use those analyses and forecasts to produce actions with direct societal benefits.”**

Value Creation through Collaboration

- We are a data driven society
- But we don't just need data – we need information that leads to a decision or action–
*Risk Analysis, Decision Support, **Adding Value***
- **Data-->Information-->Knowledge-->Decisions**
- We risk being data rich, decision poor

Using Science and Technology To Advance Better Decisions



- The power of **data** to support **decision**-makers
- The power of Information Systems to **integrate** data from various sources (GIS)
 - Understanding **interrelationships**
 - Help leaders understand today's **priorities** and allocate **resources**
- It's not about science, it's not about technology – it's about **solutions**

The Framework For National Policies/Priorities

- Transparency & Accountability
- Performance Measurement
- Placed Based Approaches
- Web Services
- Citizen Engagement
- Open Data / Open Gov

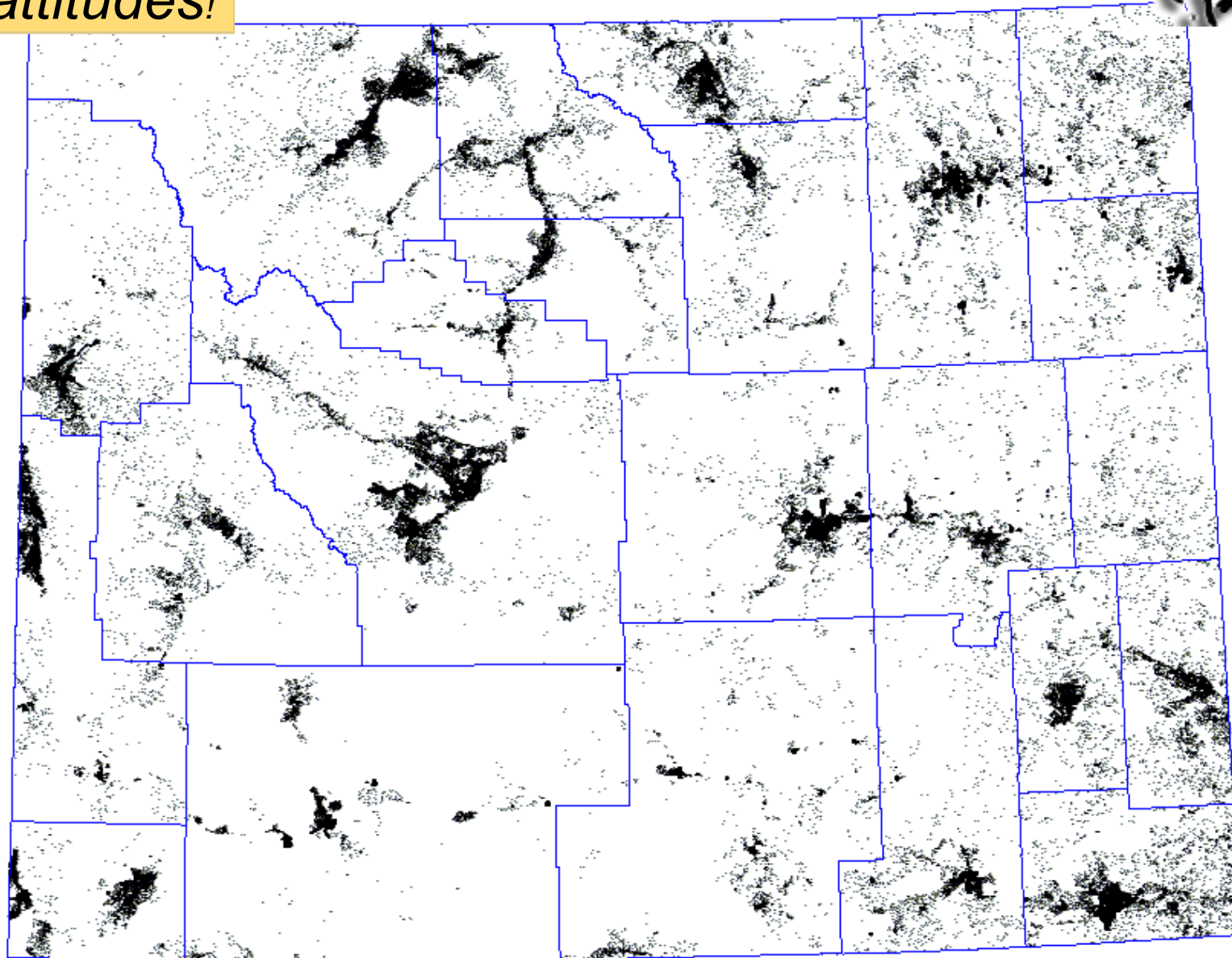


... Hundreds of Projects and Programs

*High Altitudes,
low multitudes,
great attitudes!*

Wyoming 1990 Population

1 Dot = 1 Person





Society for Keeping Everybody
East of the Mississippi (SKEEM)

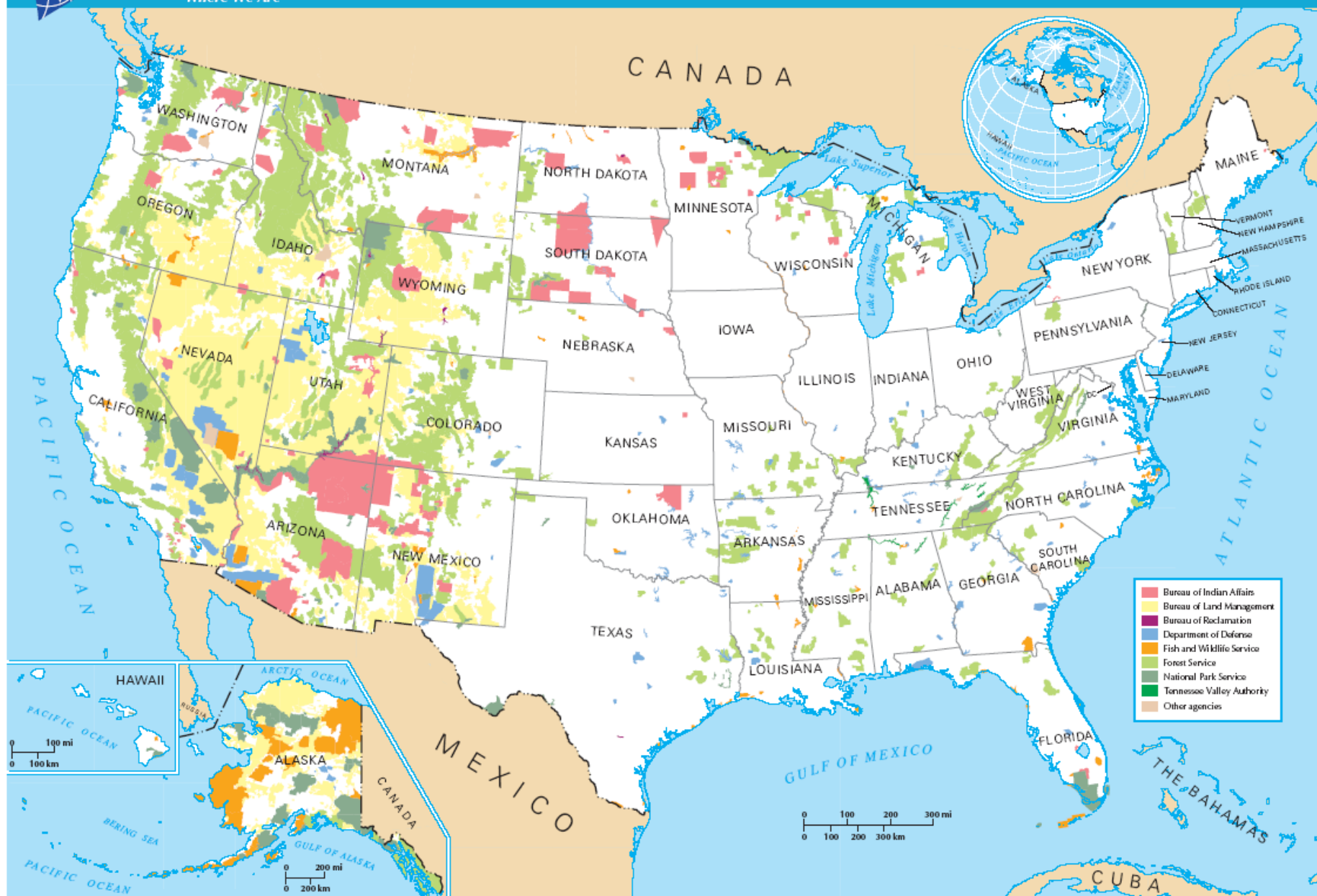
**A Sense
of Place**

**The Power of
a Picture**



nationalatlas.gov™
Where We Are

FEDERAL LANDS AND INDIAN RESERVATIONS

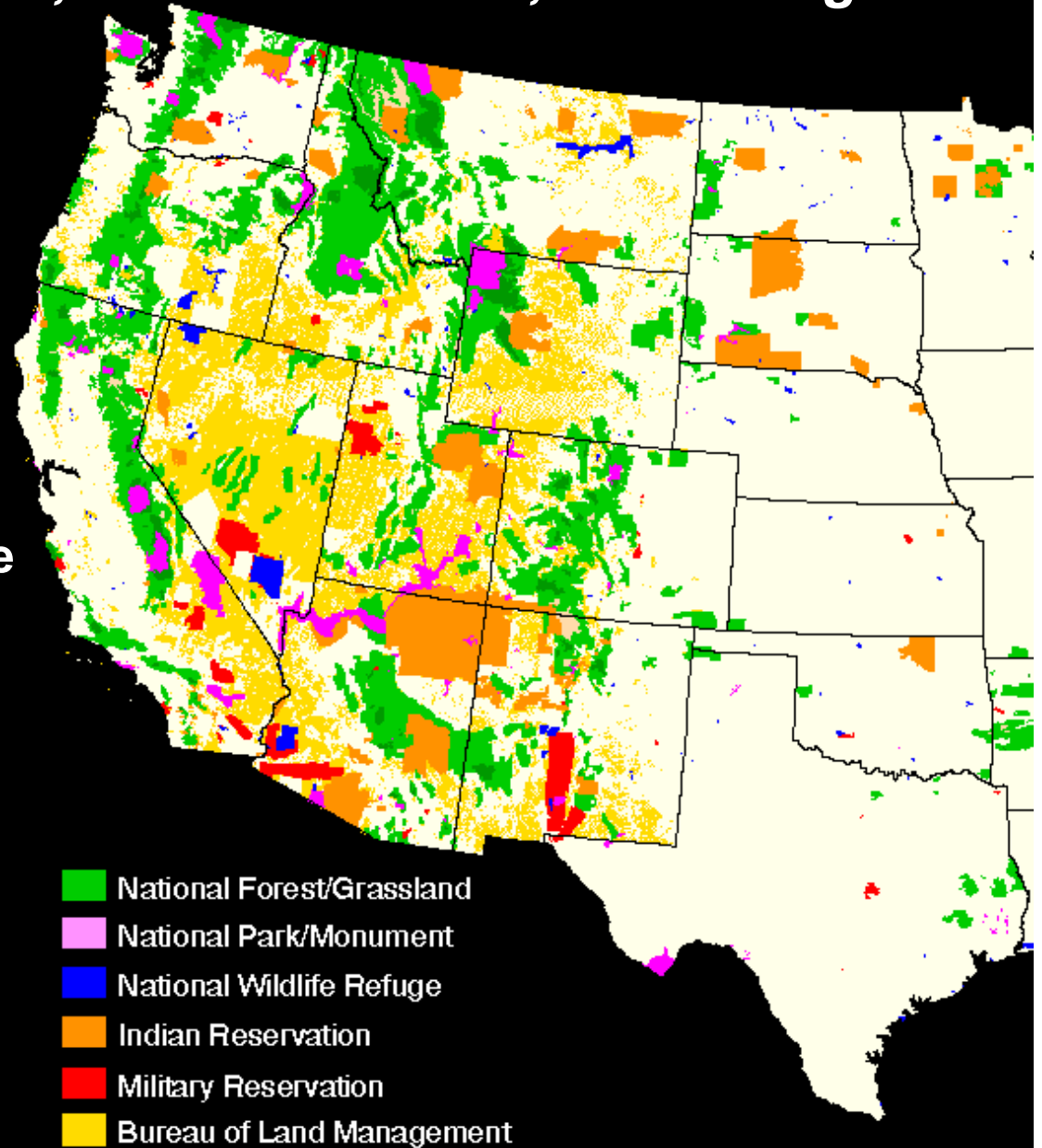


U.S. Department of the Interior
U.S. Geological Survey

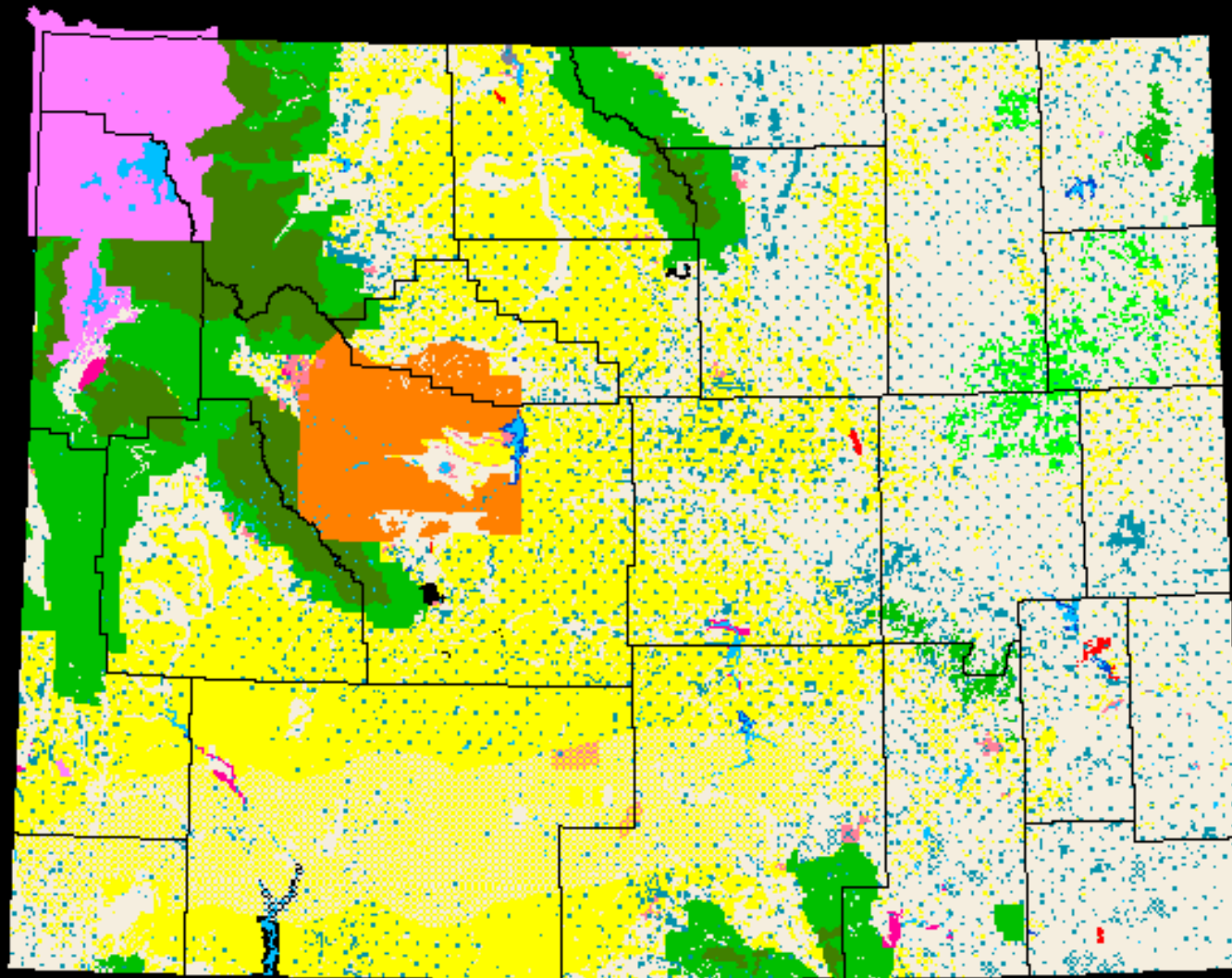
The National Atlas of the United States of America®

My Wyoming Experience - Resource development and Conservation: *Fragmented, not coordinated, common good wasn't.*

- Concurrent, not exclusive, jurisdictions
- Shared responsibilities
- Local impact on economic and social issues
- Adversity and animosity were far too common
- Affected land, air, energy, water, agriculture, economy, transportation, conservation, endangered species....



Wyoming -15 Types of Surface Owners



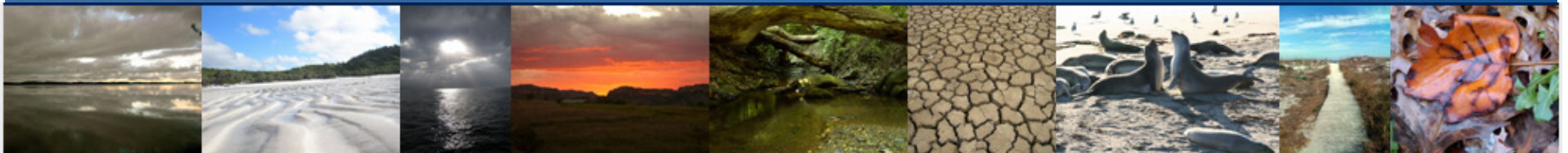
- National Wildlife Refuge**
- National Park**
- National Recreation Area**
- USFS Forest**
- USFS Wilderness**
- USFS Grassland**
- USFS Research Area**
- Bureau of Land Management**
- Department of Defense**
- Indian Reservation**
- State Trust Land**
- State Park**
- State Habitat Area**
- Nature Conservancy Pres**
- Private**
- Open water**



National Environmental Policy Act

_Purpose Clause

- Enacted “recognizing the profound impact of man’s activity on the **interrelations** of all components of the natural **environment**”
- “It is the policy of the Federal Government, in **cooperation** with State and Local governments and other concerned public and private organizations... to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the **social, economic and other requirements** of present and **future generations.**”



The West:

Rich in Open Spaces, Wildlife, Energy and People



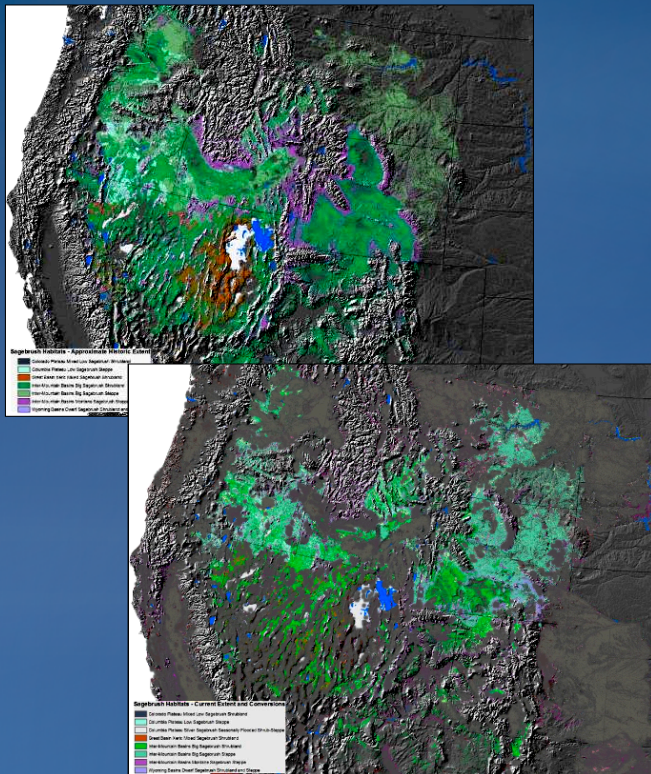
... Our Common Heritage

Wildlife Habitats Are Disappearing

Particularly the Habitat Corridors that Support Migration

Sagebrush

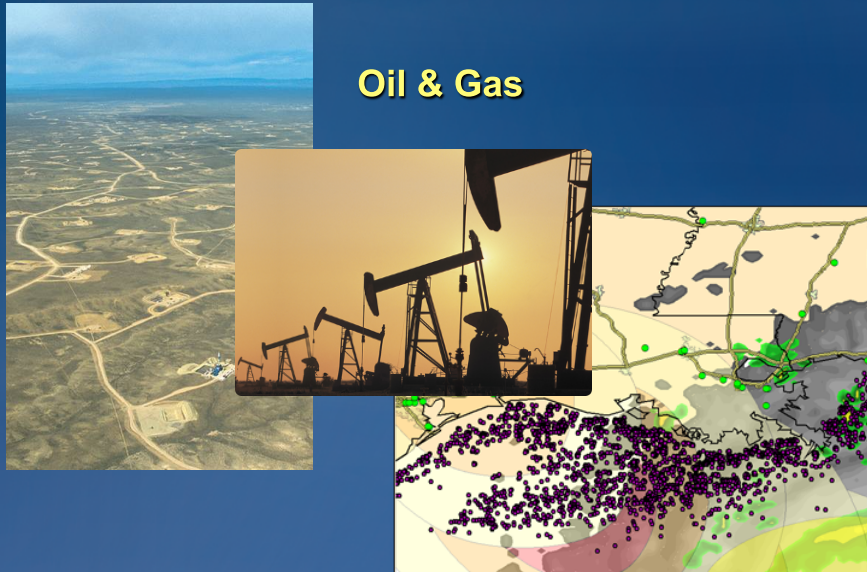
Historic



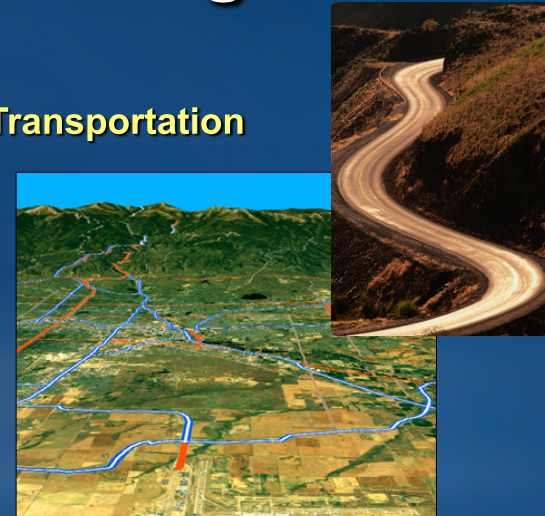
Current

Growth and Change Were and Are Fragmented

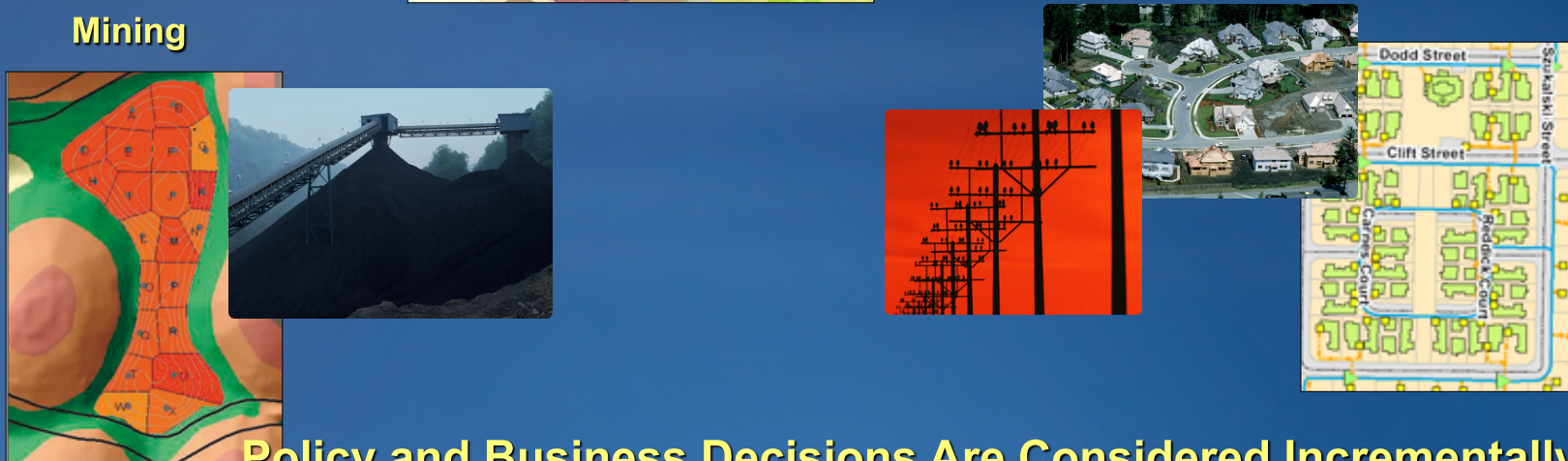
Oil & Gas



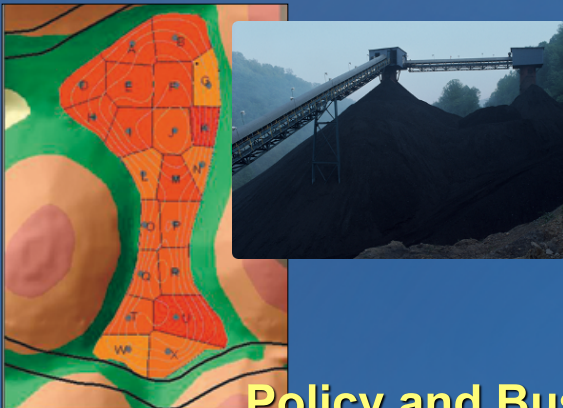
Transportation



Land Use & Development



Mining



... Policy and Business Decisions Are Considered Incrementally
Often in isolation

The Western Governors' Science Committee Report

Creating

Wildlife Habitat Inventories
Decision Support Systems

Scientific Information

Creating
Measuring
Organizing
Analyzing
Modeling

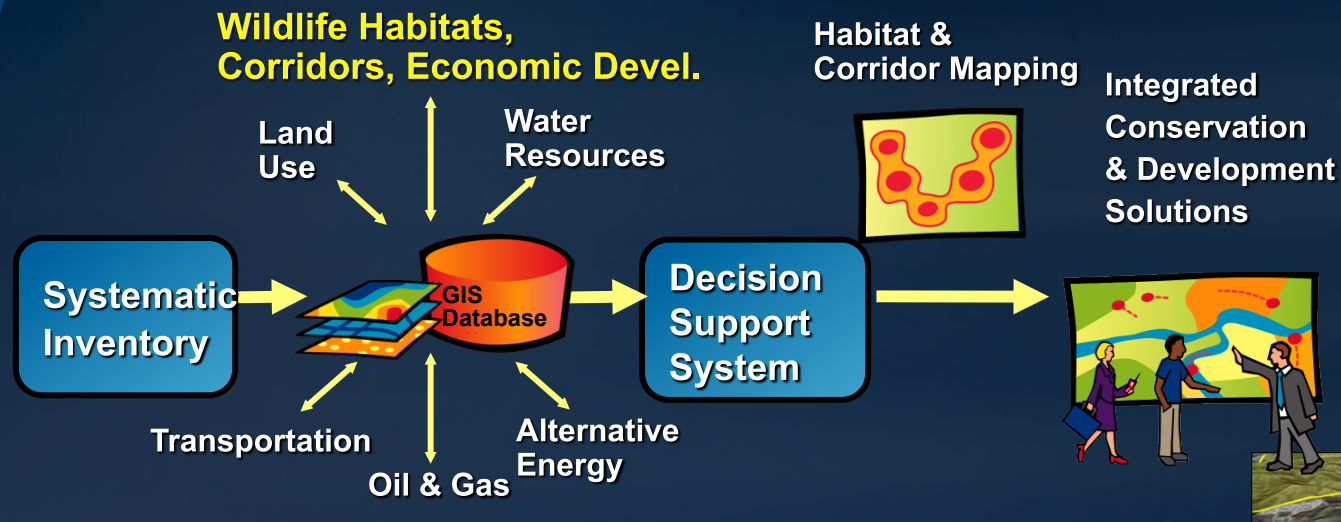
Applying
Planning
Designing
Deciding
Managing
Acting

Comprehensive
Systematic
Analytic
Visual

Integrating Science Into How We Decide
To Better Manage Our Future . . .

We Needed A System for Collaborating Together

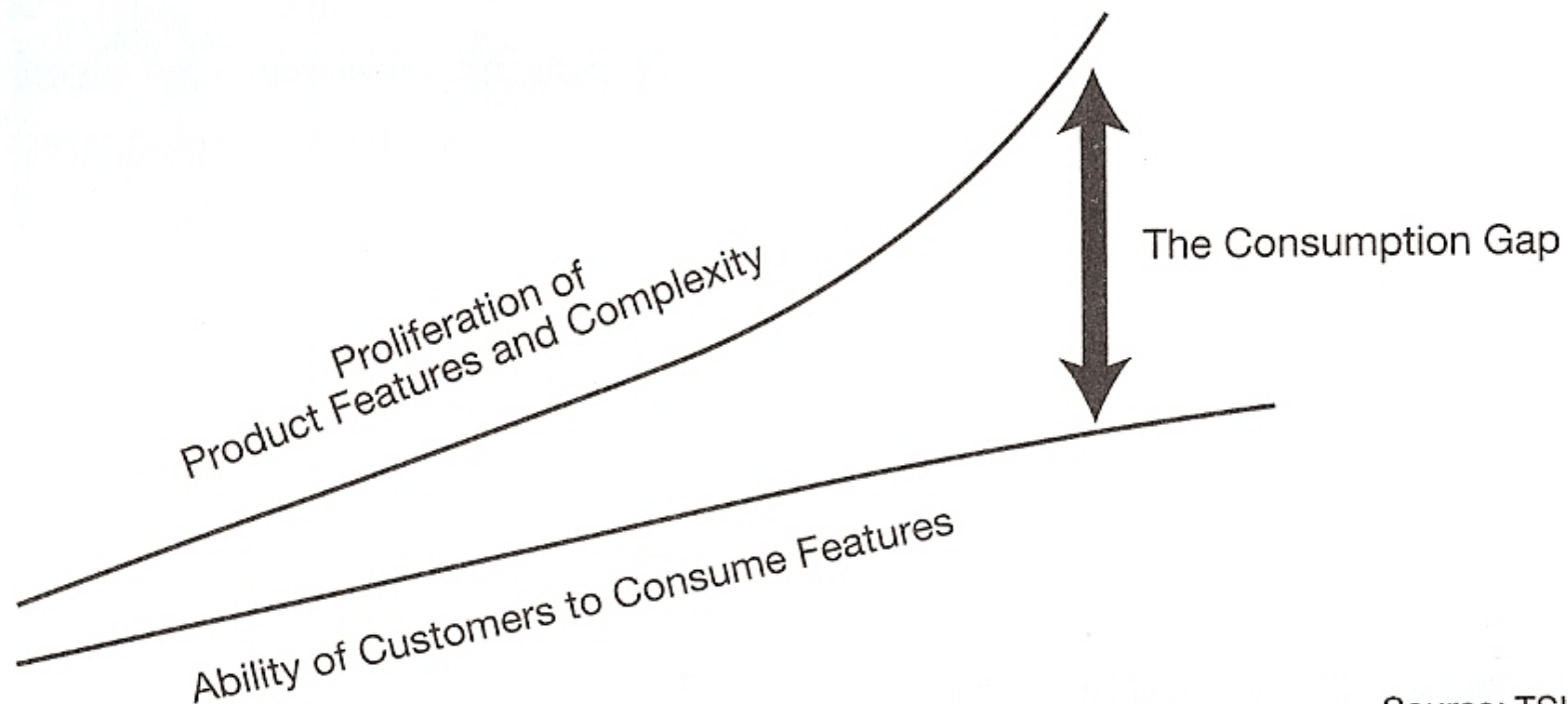
... A Decision Support System Within Each State and Among the States



***More than just gathering Data
or compiling studies***

***... Considers All the Factors, Interests
Involves Public & Private Decision Makers
Provides the Means to See New Solutions***

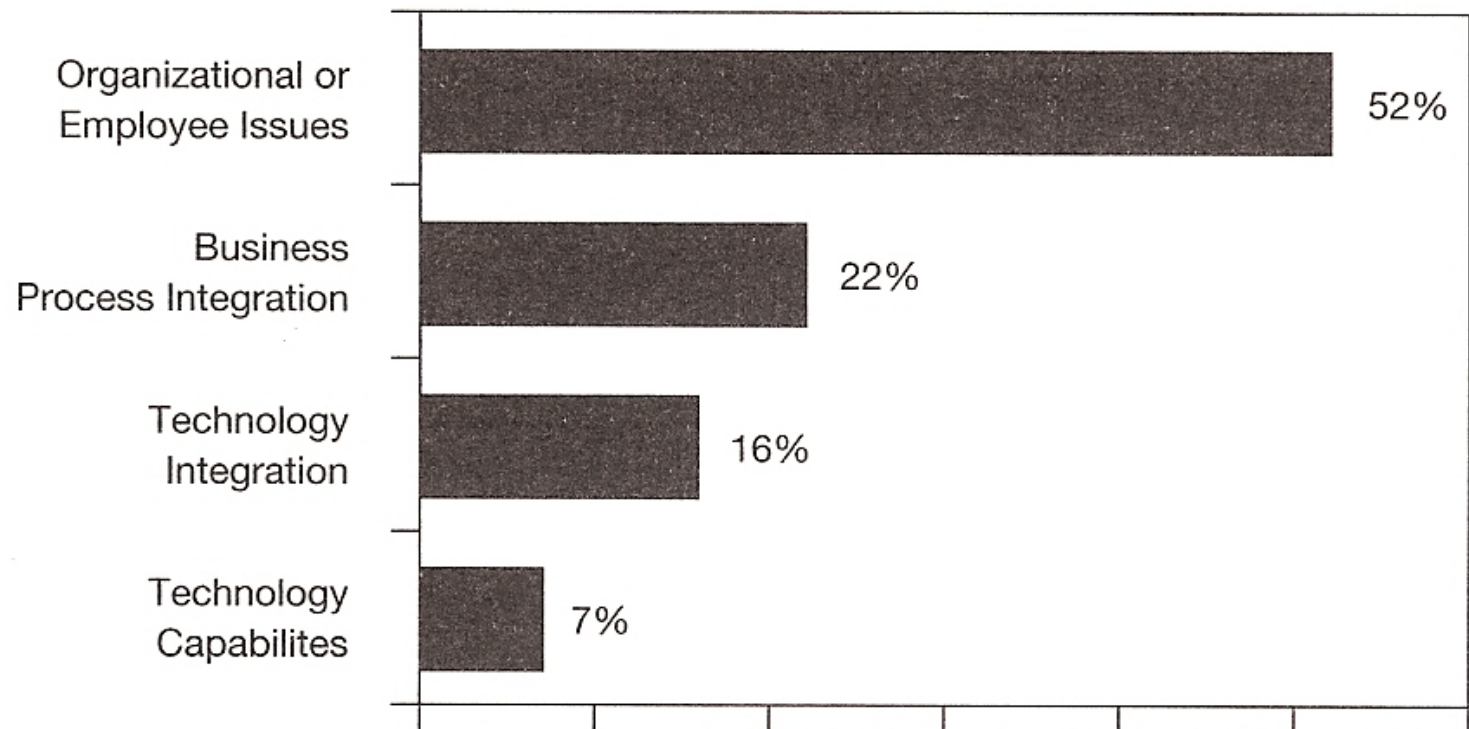
COMPLEXITY AVALANCHE



Source: TSIA

FIGURE 1.2 The Growing Technology Consumption Gap.

COMPLEXITY AVALANCHE



Source: Cisco Systems Momentum Research Group

FIGURE 1.4 Q: What Are the Barriers to Future Productivity Growth?



America's CLIMATE CHOICES

- What can be done to **LIMIT** the magnitude of future climate change? (Mitigation)
- What can be done to **ADAPT** to the impacts of climate change?
- What can be done to **ADVANCE** the science of climate change?
- What can be done to **INFORM** effective decisions and actions related to climate change?

www.americasclimatechoices.org

Or

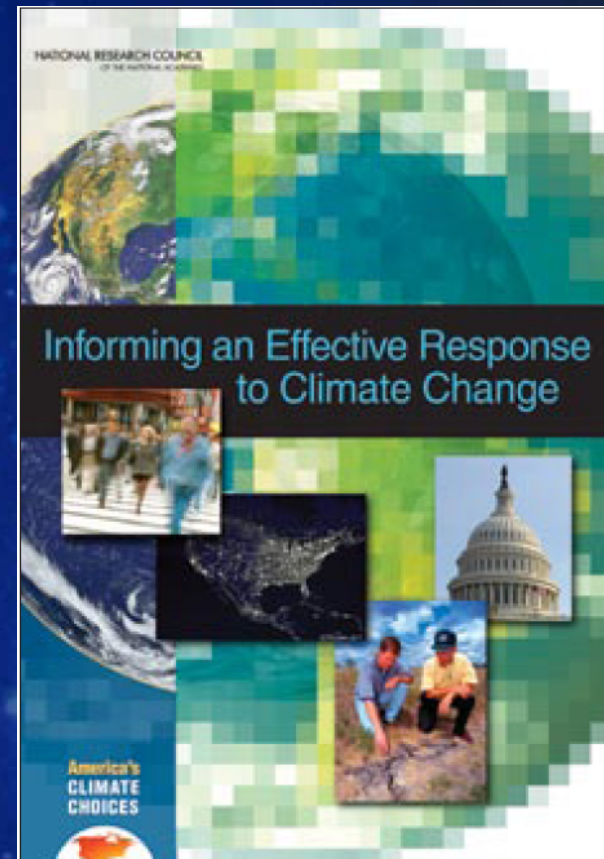
www.nas.edu

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine



America's CLIMATE CHOICES



Informing an Effective Response to Climate Change

<http://www.americasclimatechoices.org/panelinforming.shtml>

- **Demand for information** to support climate-related decisions has grown rapidly as people, organizations, and governments have moved ahead with plans and actions to reduce greenhouse gas emissions and to adapt to the impacts of climate change.
- Today, however, **the nation lacks** comprehensive, robust, and credible **information systems** to inform climate choices and evaluate their effectiveness.

Informing an Effective Response to Climate Change

- *To provide a policy framework that promotes effective responses at all levels of American society, the federal government should build on its existing efforts and establish clear federal **leadership, responsibility, and coordination** for climate related decisions, information systems, and services.*

Informing an Effective Response to Climate Change

- *The report recommends that decision makers implement an **iterative risk management** strategy to manage climate decisions. Federal agencies should review and revise risk insurance programs; private firms should consider climate change risk disclosure.*
- *This report emphasizes that information should be **tailored to user needs**, provided at space and timescales to support **decision-making**, communicated clearly, and accompanied by **decision support** tools that allow exploration of **alternative** pathways.*

Informing an Effective Response to Climate Change

- *In order to meet National needs for state-of-the-art **information** on climate change, its impacts, and response options, a **coordinated system** of climate services is needed.*

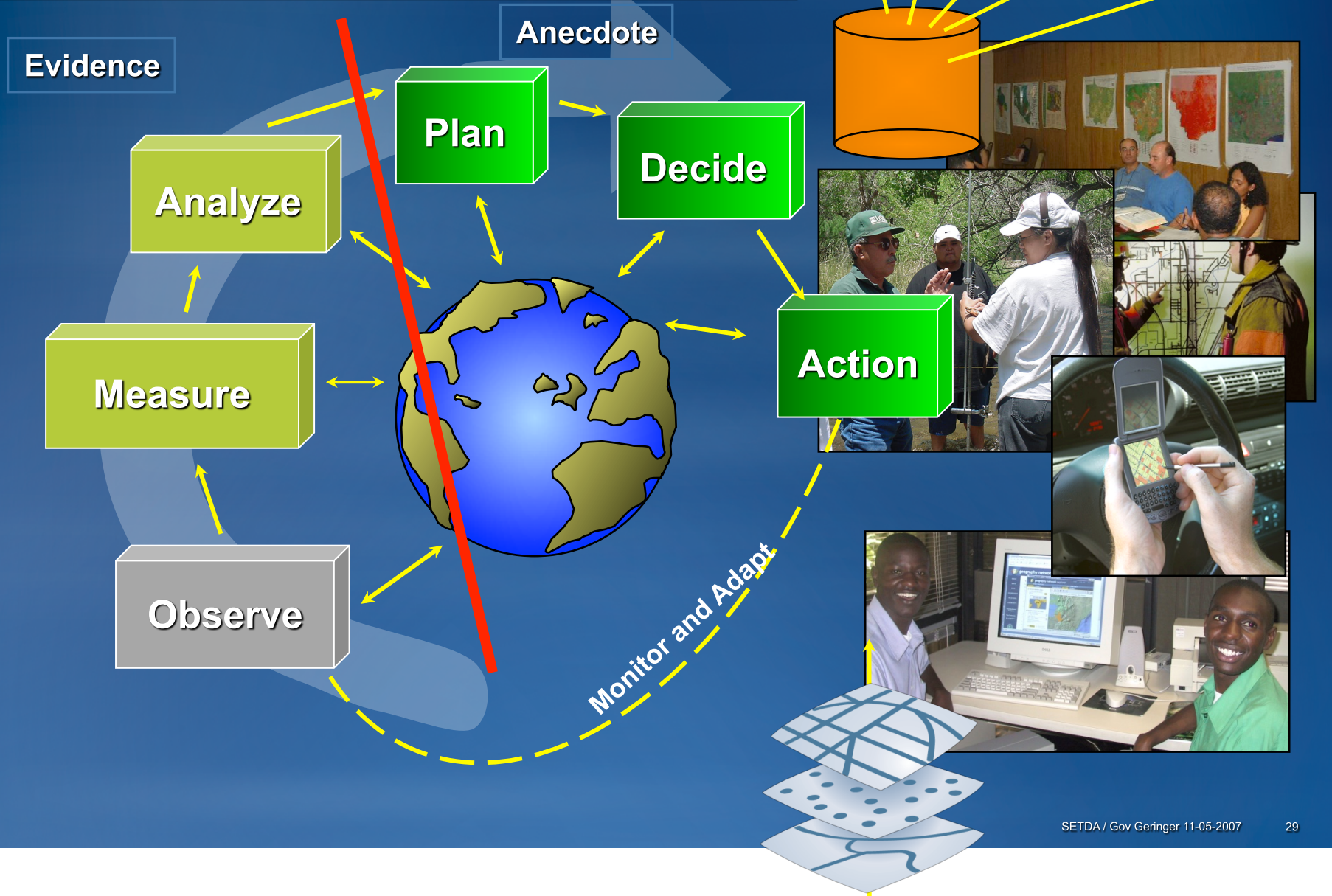
Informing an Effective Response to Climate Change

- *The federal government should establish a national task force that includes formal and informal educators, government agencies, policymakers, business leaders, and scientists, among others, to set national goals and objectives, and to develop a **coordinated strategy** to improve climate change and education*

Geographic Information Systems: More than a Map

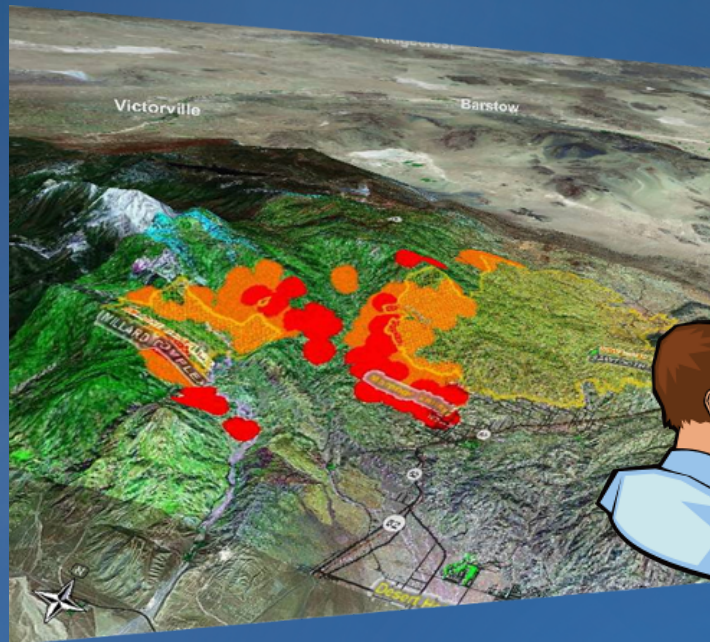
- GIS is pushing beyond mapping and management of geographic space to spatial collaboration, reasoning, dialogue, comprehensive planning and decision support
- GIS has transformed the way we capture, analyze, and use data
- Just as remote sensing led to **global** view, GIS leads to **integrated** view

Closing The Gap Between Technology & Policy



The challenges of today span political and agency boundaries.

Solutions typically affect more than the geography of a single political or business jurisdiction



Imagery and Data

Creating a Sense of Engagement



Providing More

- Science
- Accuracy/Detail
- Realism
- Logic & Analysis
- *Immediacy*
- *Integration*

... Changing How We Communicate

NIDIS - Testimony to House Science and Technology, Senate Commerce – Gov Geringer 2006-2007

- The problem is two-fold. **First**, our federal policy and programs foster **dependency** rather than enabling **risk management**. **Second**, our Earth observation systems, including for drought, are neither efficient nor integrated
- We have created a **culture of expectation** that government will always be there with money.
- We need to break the cycle of **expectation of reconstruction after destruction**. If we don't, we will be faced ever increasing federal assistance.
- We must shift the focus to **prediction and mitigation**, even if prevention is not an option.
- Greater self-reliance through risk management will generate savings from federal assistance programs allowing the redirection of funds rather than necessitating new taxes.

Status Briefing – Decision Support

- ***Executive , CEO, Congress-person***
- ***Department Secretary***
- ***Agency officials – Budget, IT***

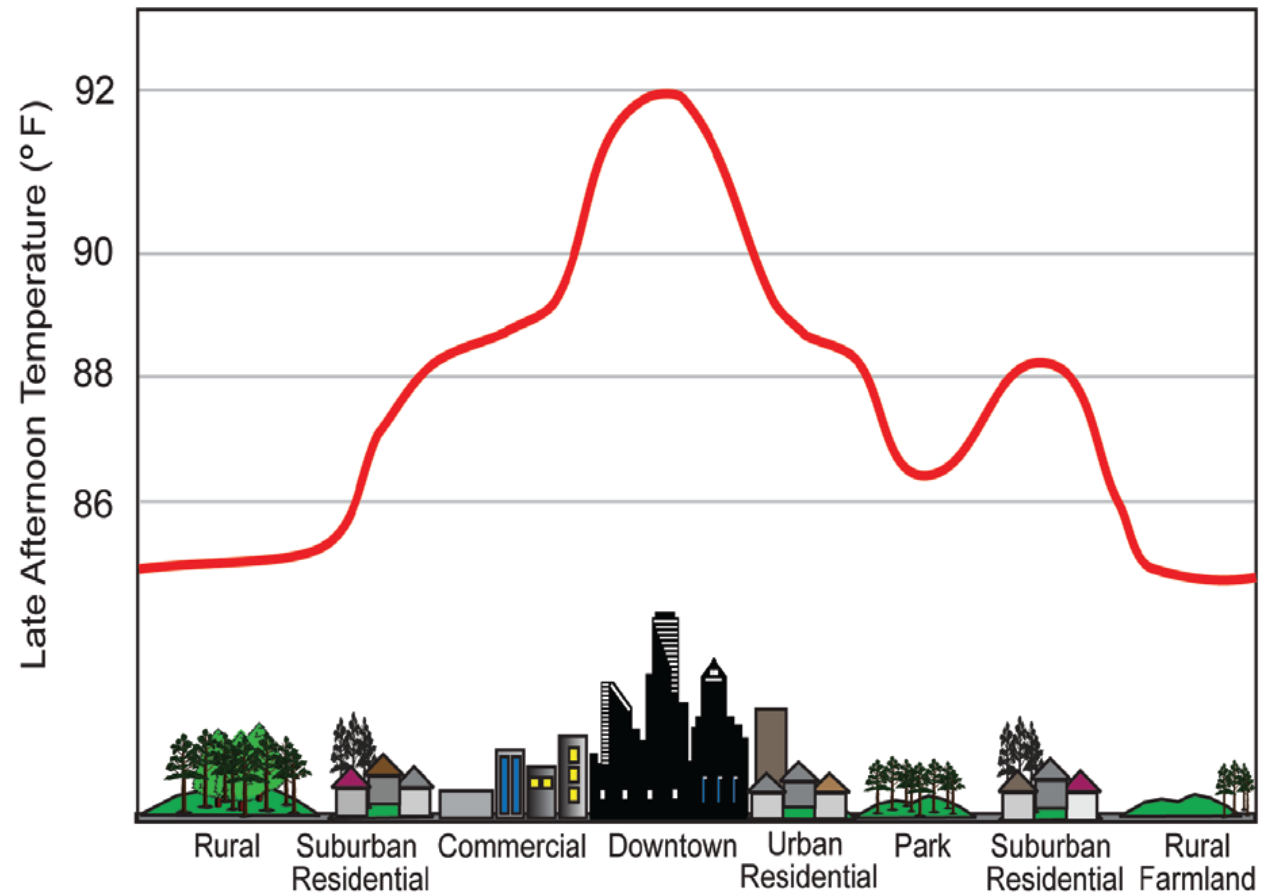
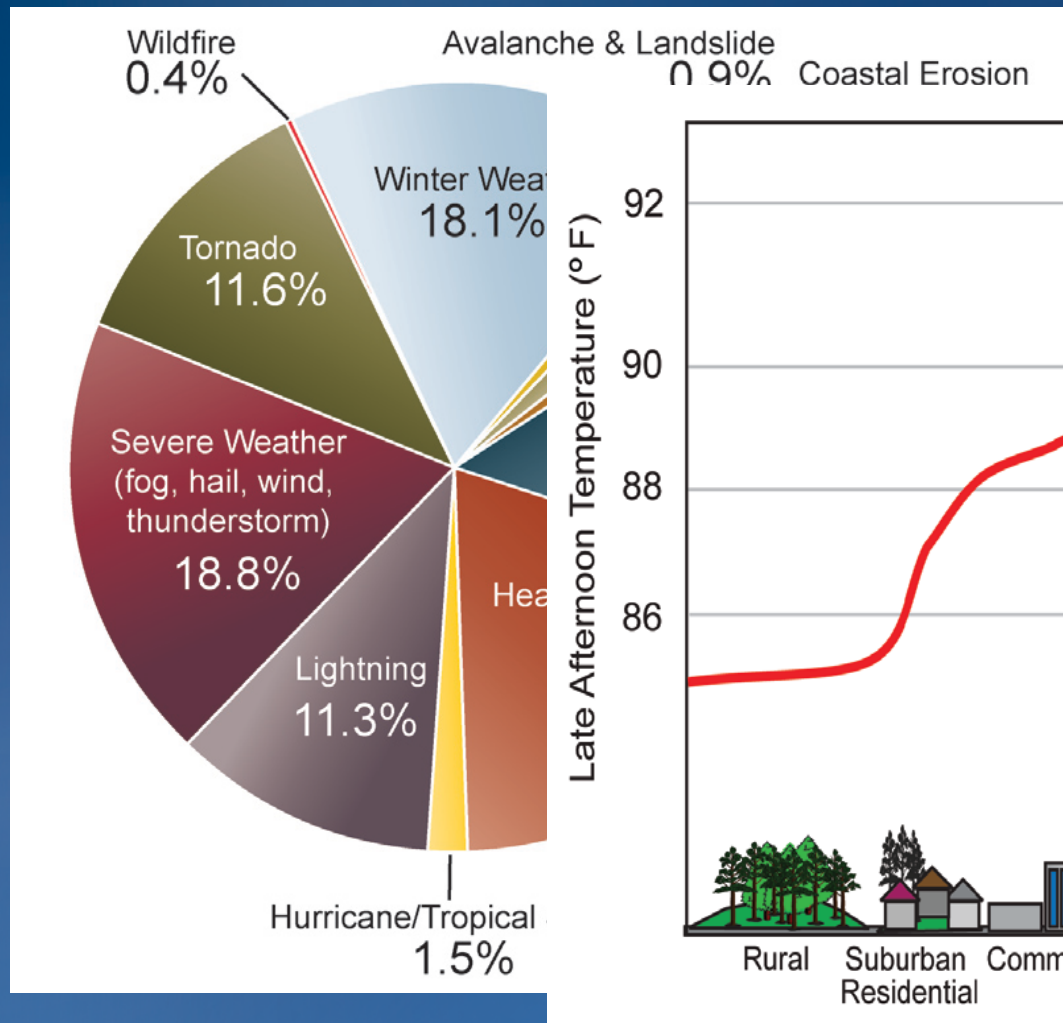
- ***Issue***
- ***Problem***
- ***Solution (Options)***
- ***Information Systems (Data, GIS)***
- ***Example***

Issue – All Hazards Approach to Resilience

- **Problem** – Vulnerability Is Segmented
- **Solution** – Identify emergency assets, vulnerable populations, surge capacity, areas of highest risk – plan for resilience
- **Example** – Illustrate importance of data and analysis to the decision process
- **GIS** – Integrate assets and risk analysis in a common operating picture to identify real time needs, capability, recovery

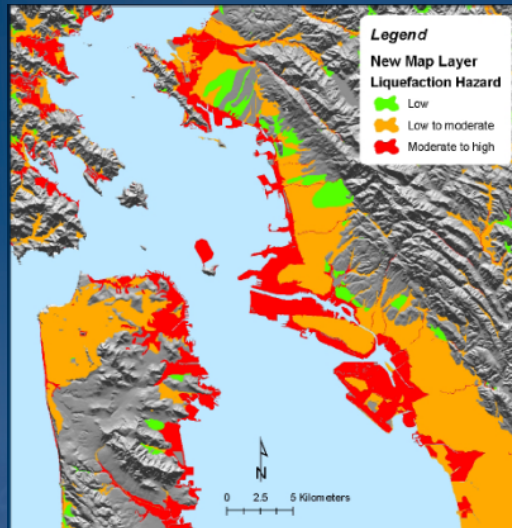
Health

Hazard-Related Deaths in the U.S.

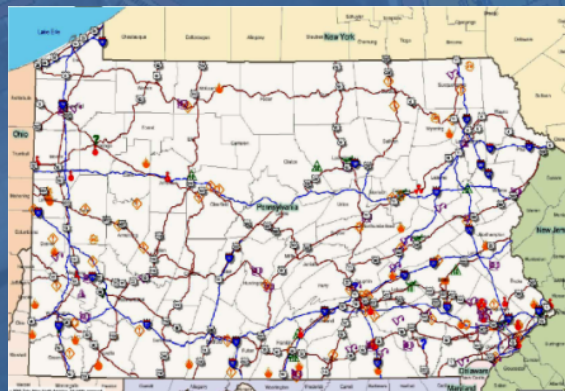


Urban Heat Island Effect

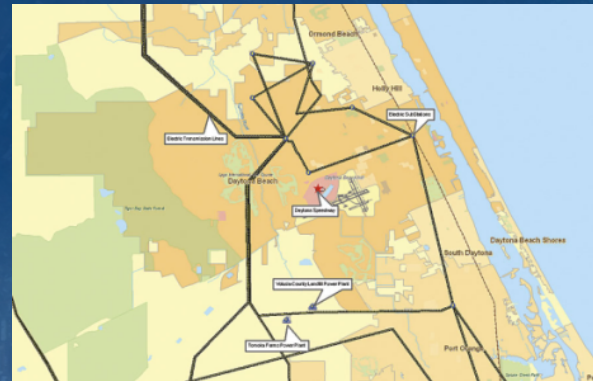
Risk and Hazard – Data & Analysis



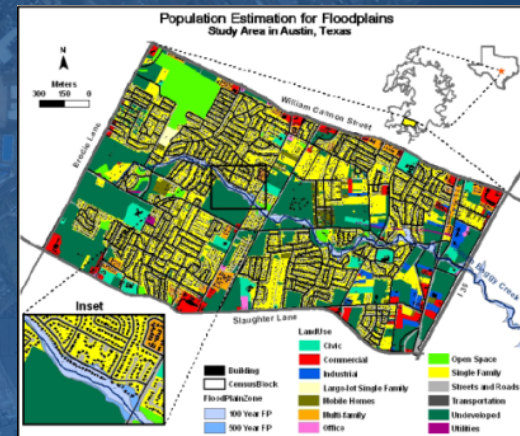
Natural Hazards



Technological Hazards

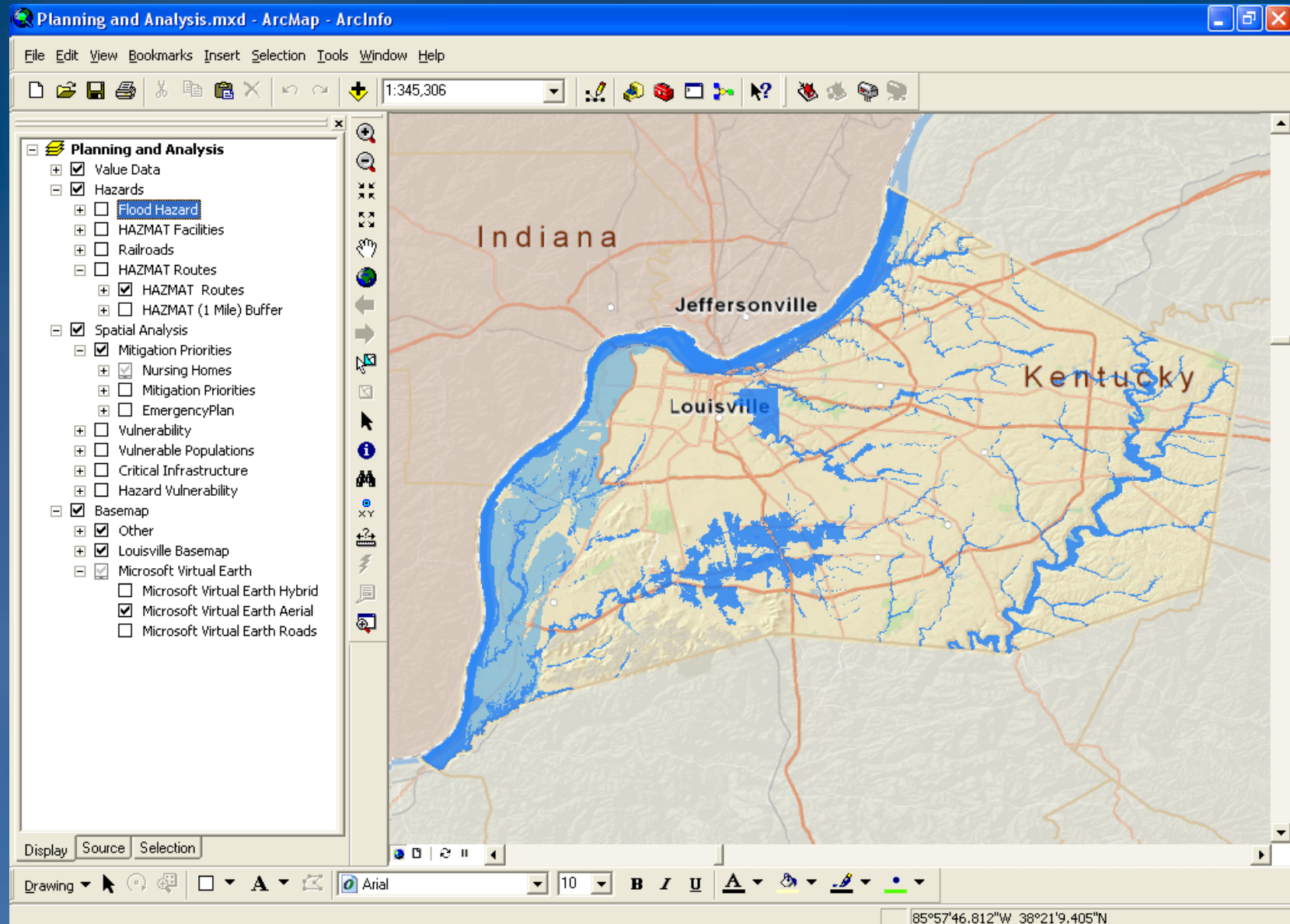


Critical Infrastructure

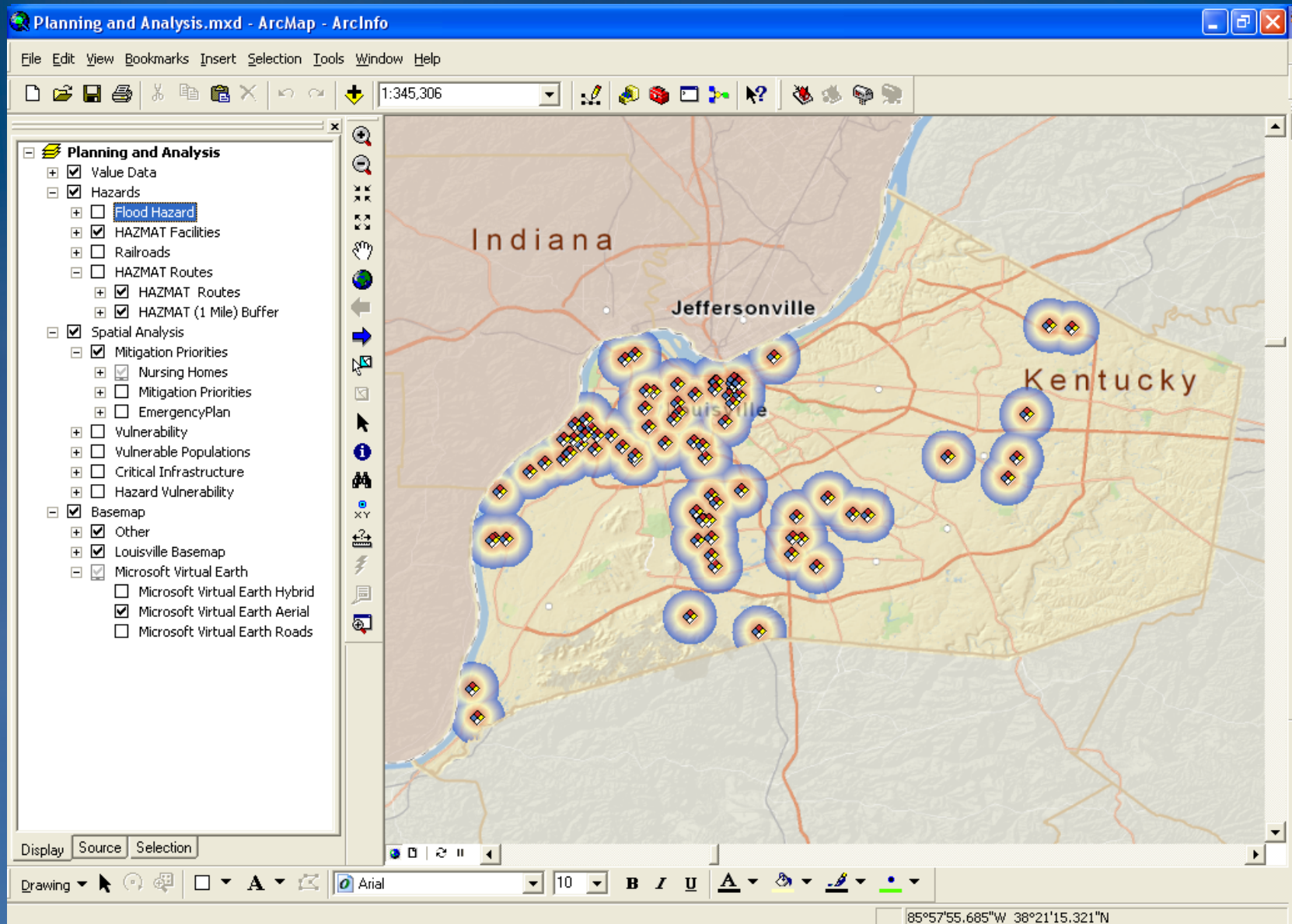


Population Density/Demographics

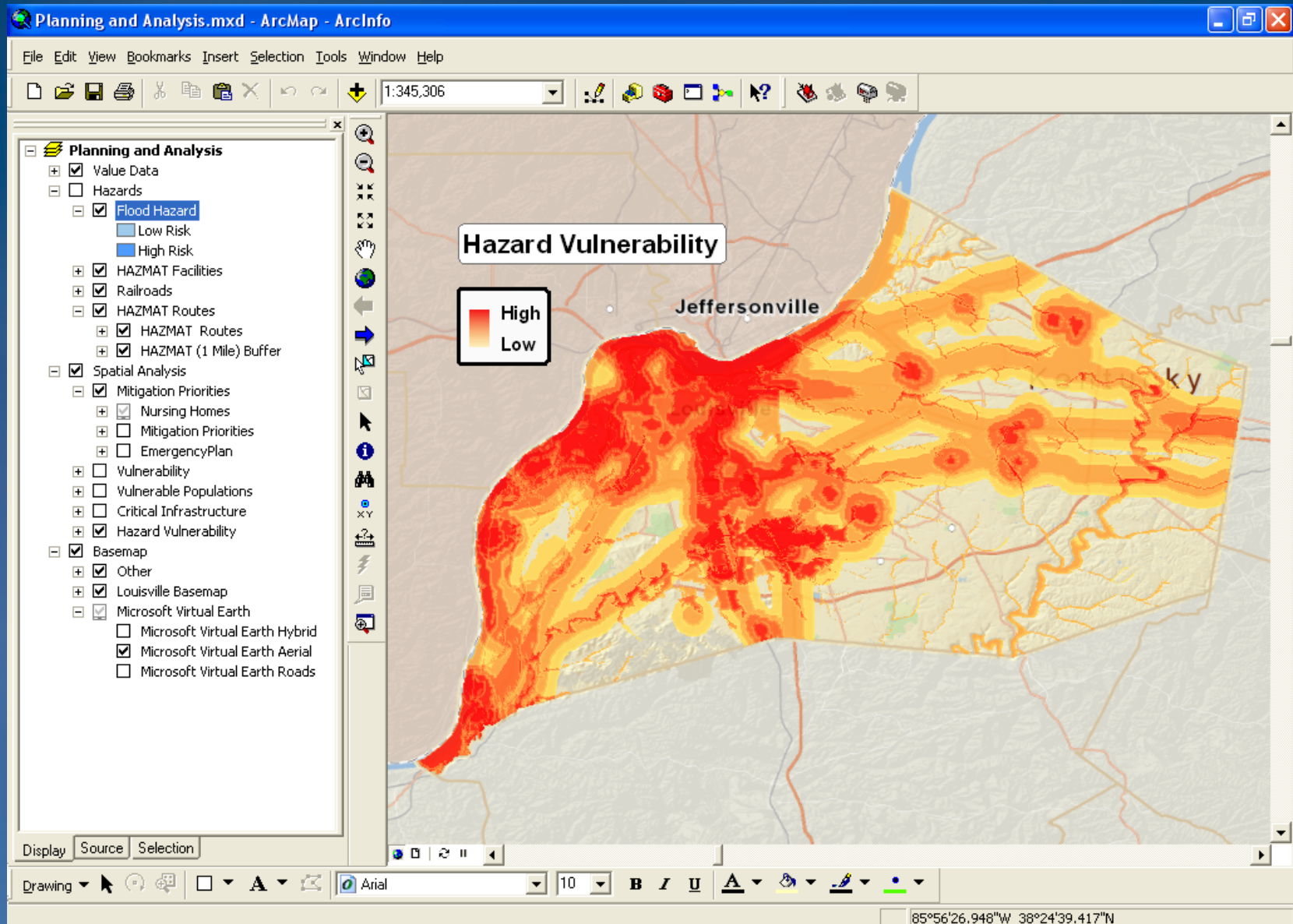
Assessment – Natural Hazards



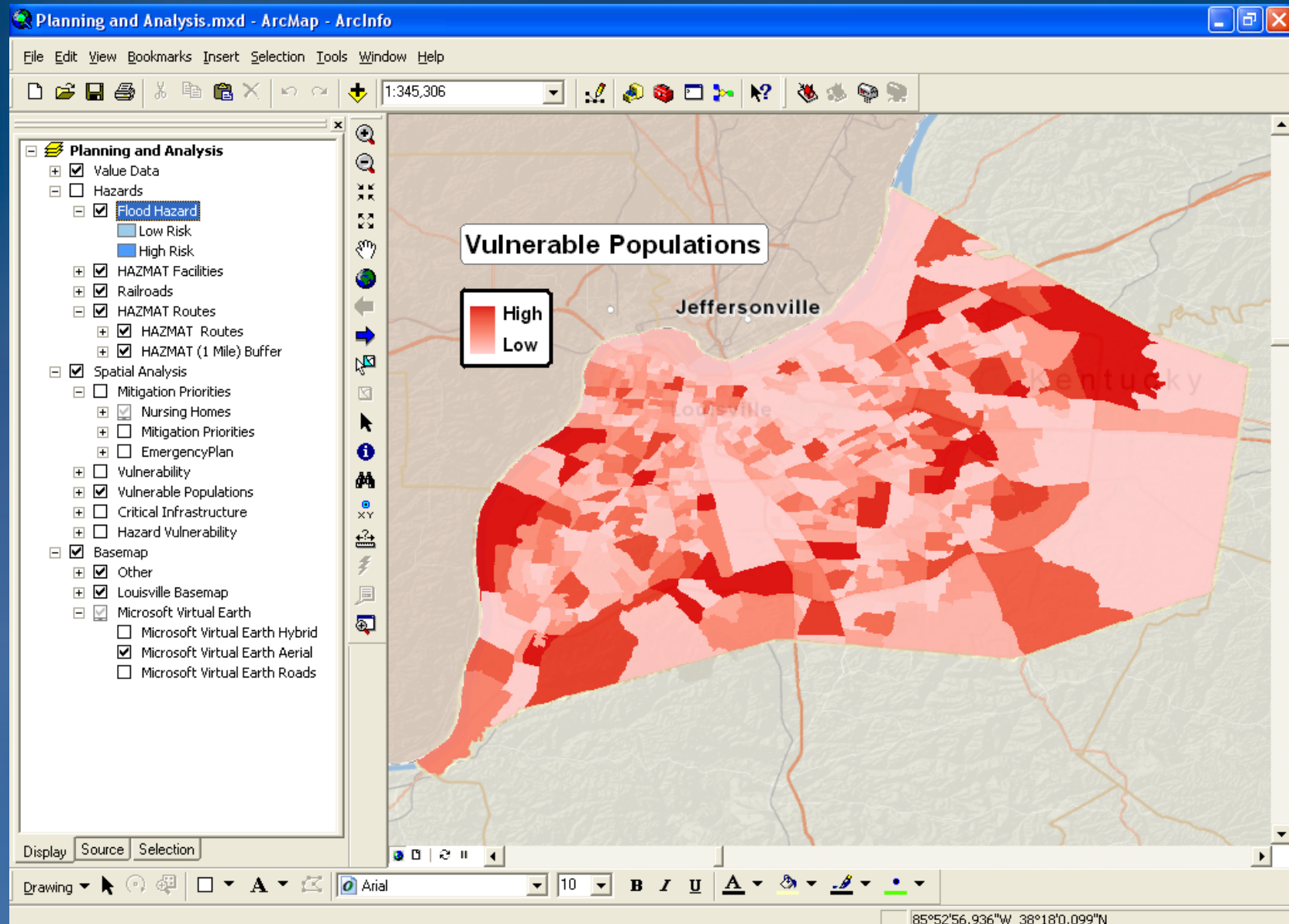
Assessment – Technological Hazards



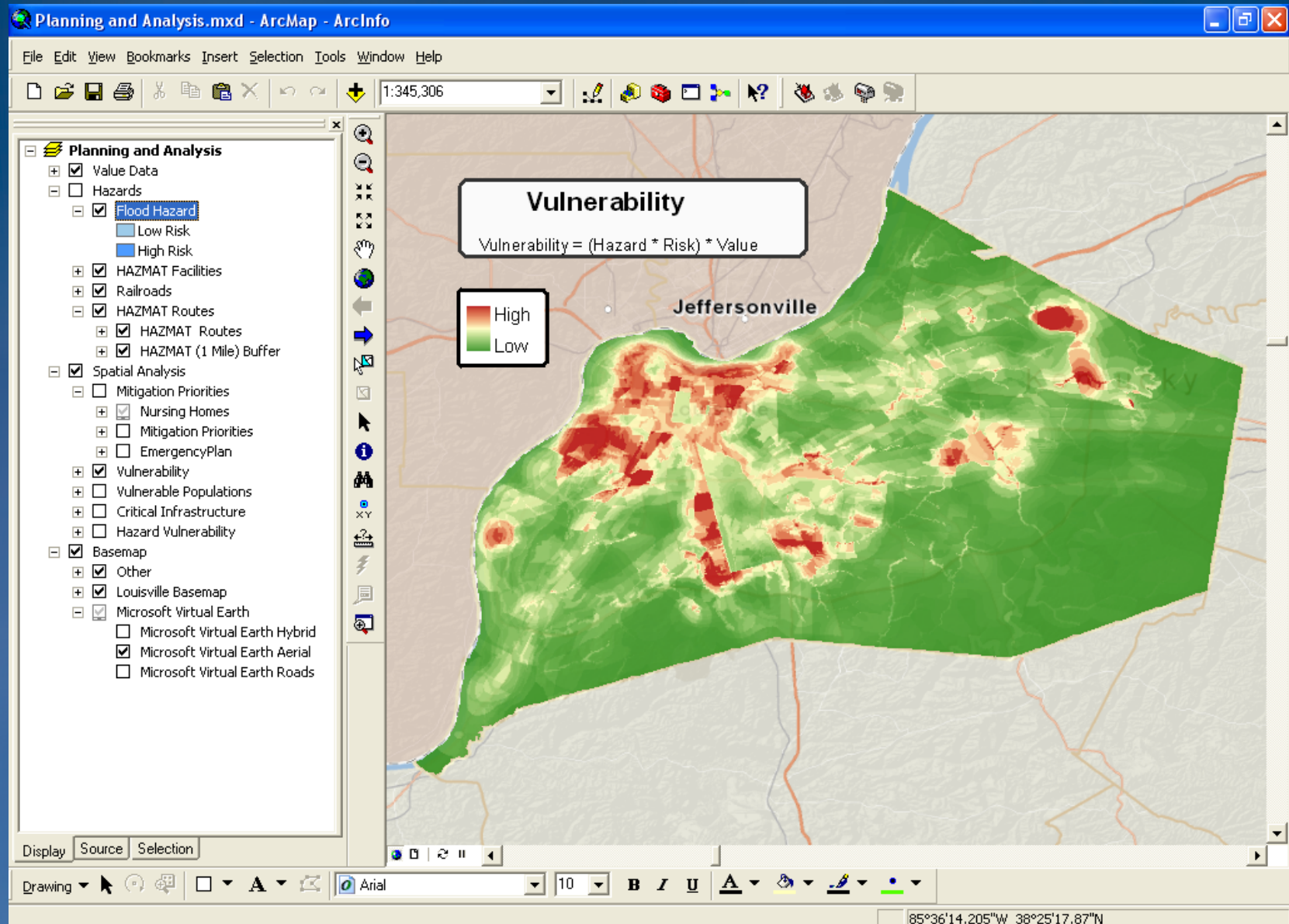
Assessment – All Hazards



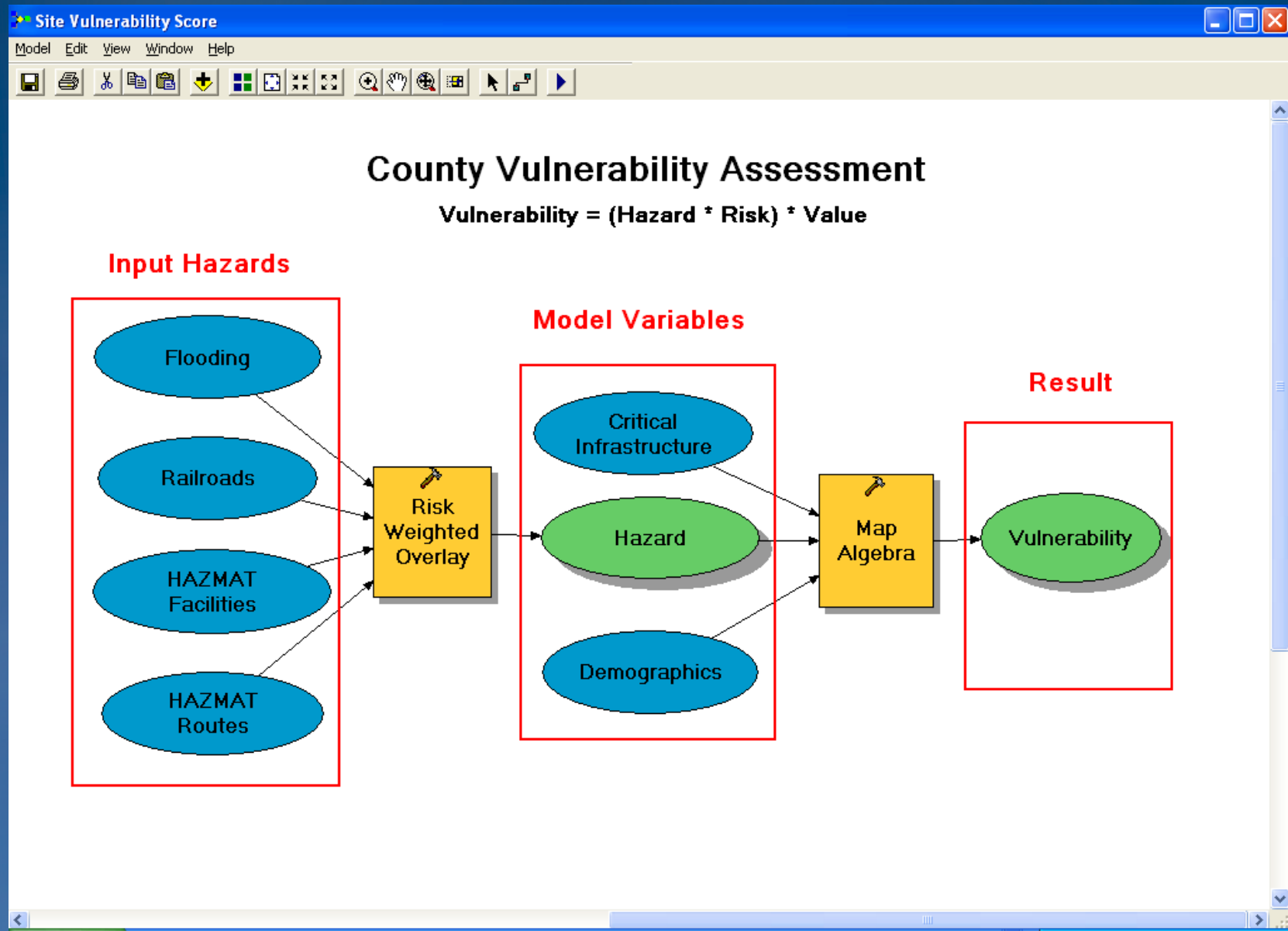
Assessment – Values



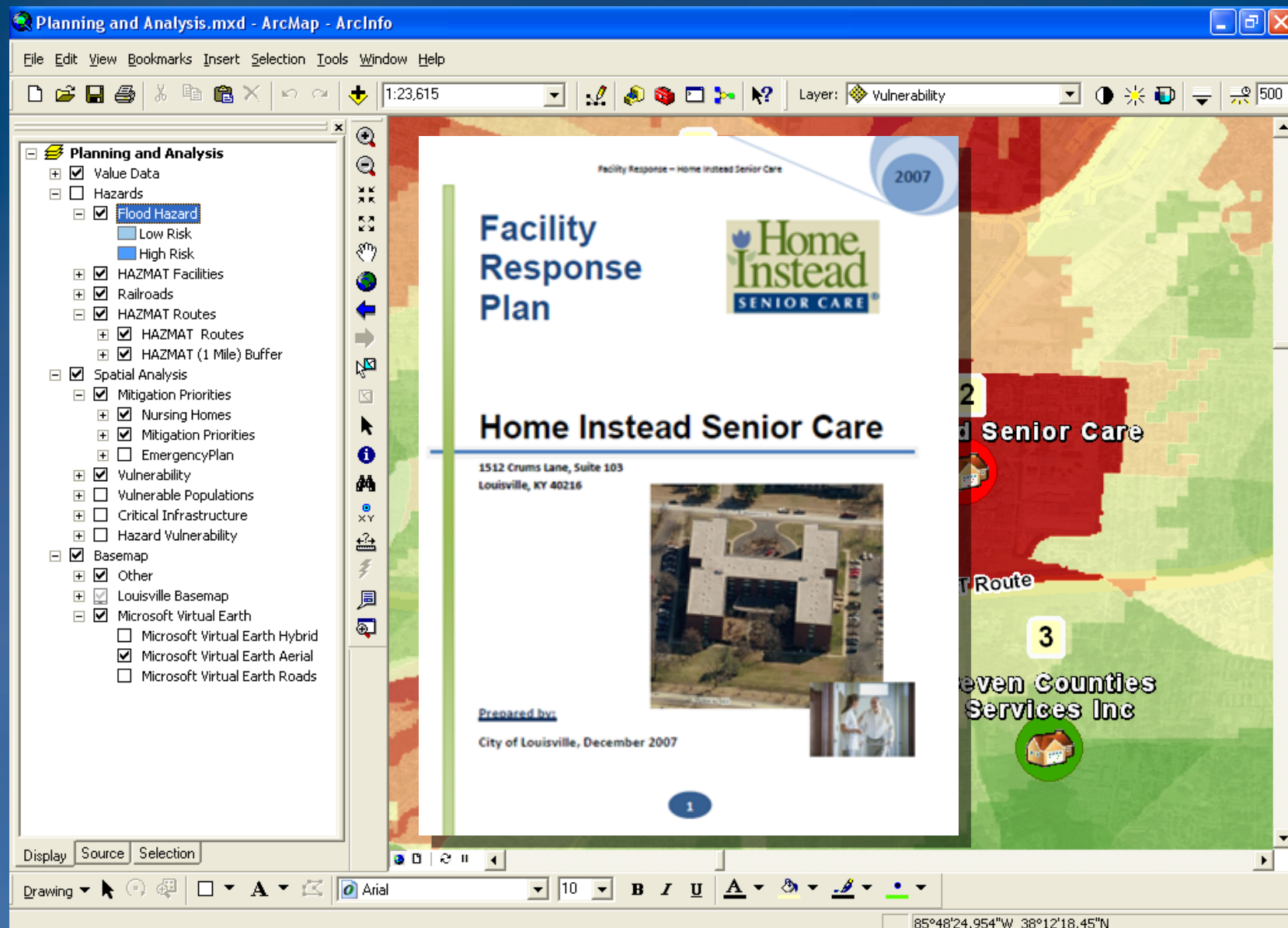
Assessment – Overall Value Exposure



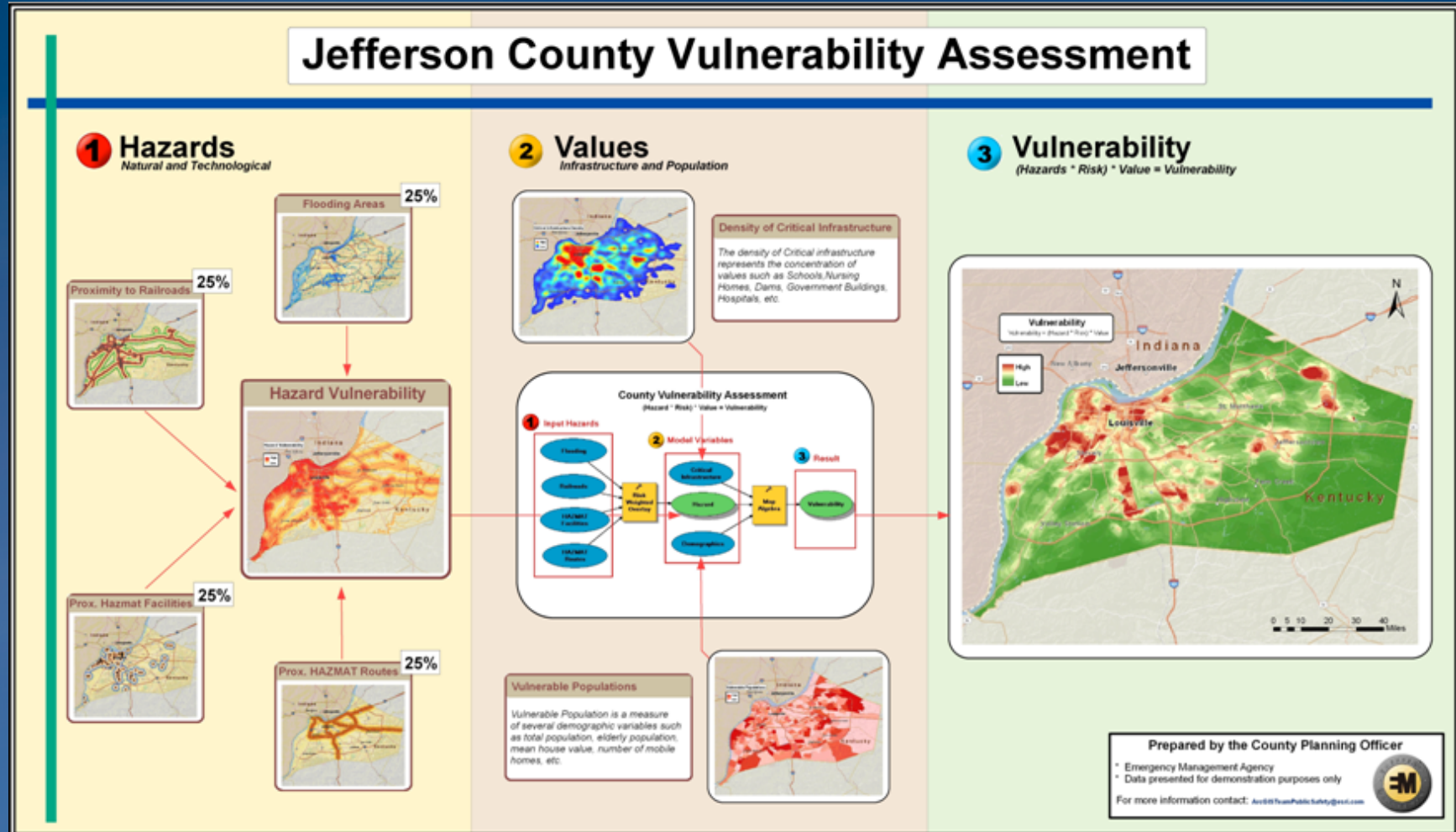
Hazards Exposure Modeling



Prioritizing Mitigation and Response



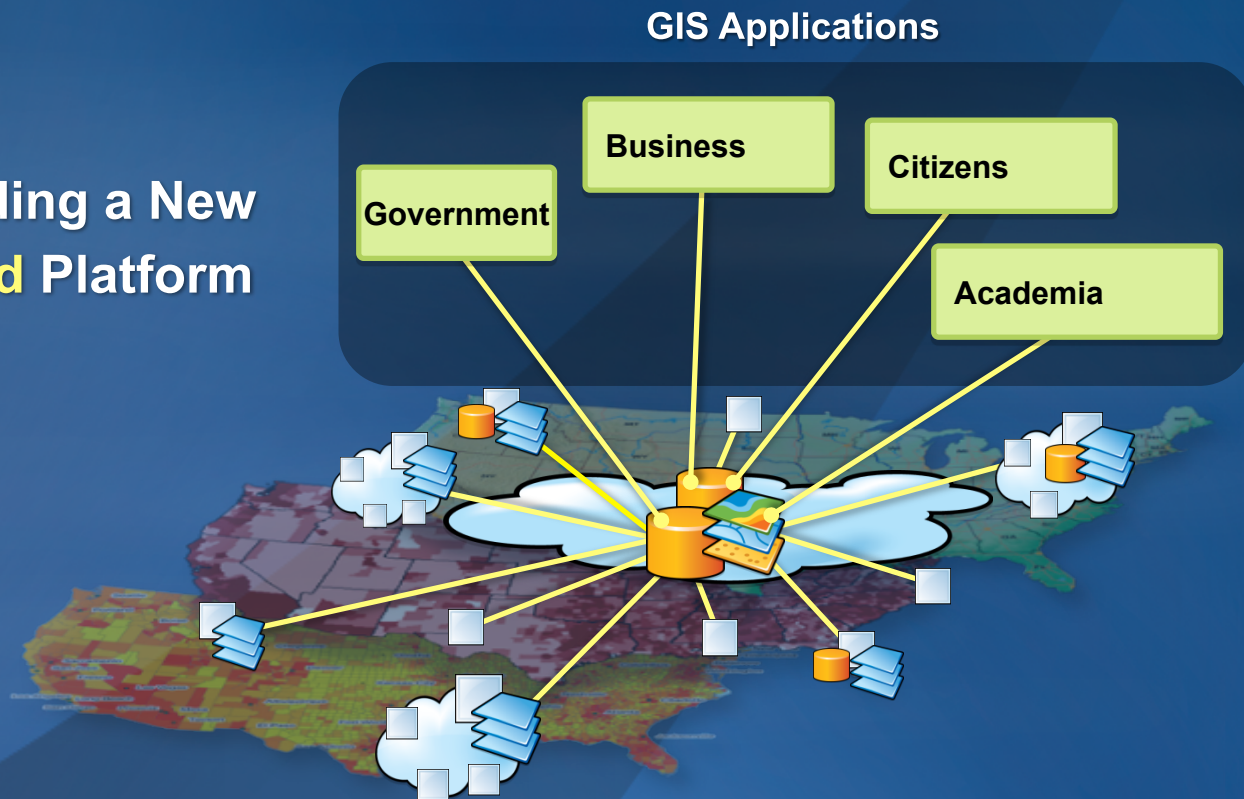
Summary of Interagency Planning, Response



A Web Based System

... A Distributed Network of Systems and Services

Providing a New
Shared Platform



*Integrating GIS Activities ...
Supporting Access, Sharing and Collaboration*

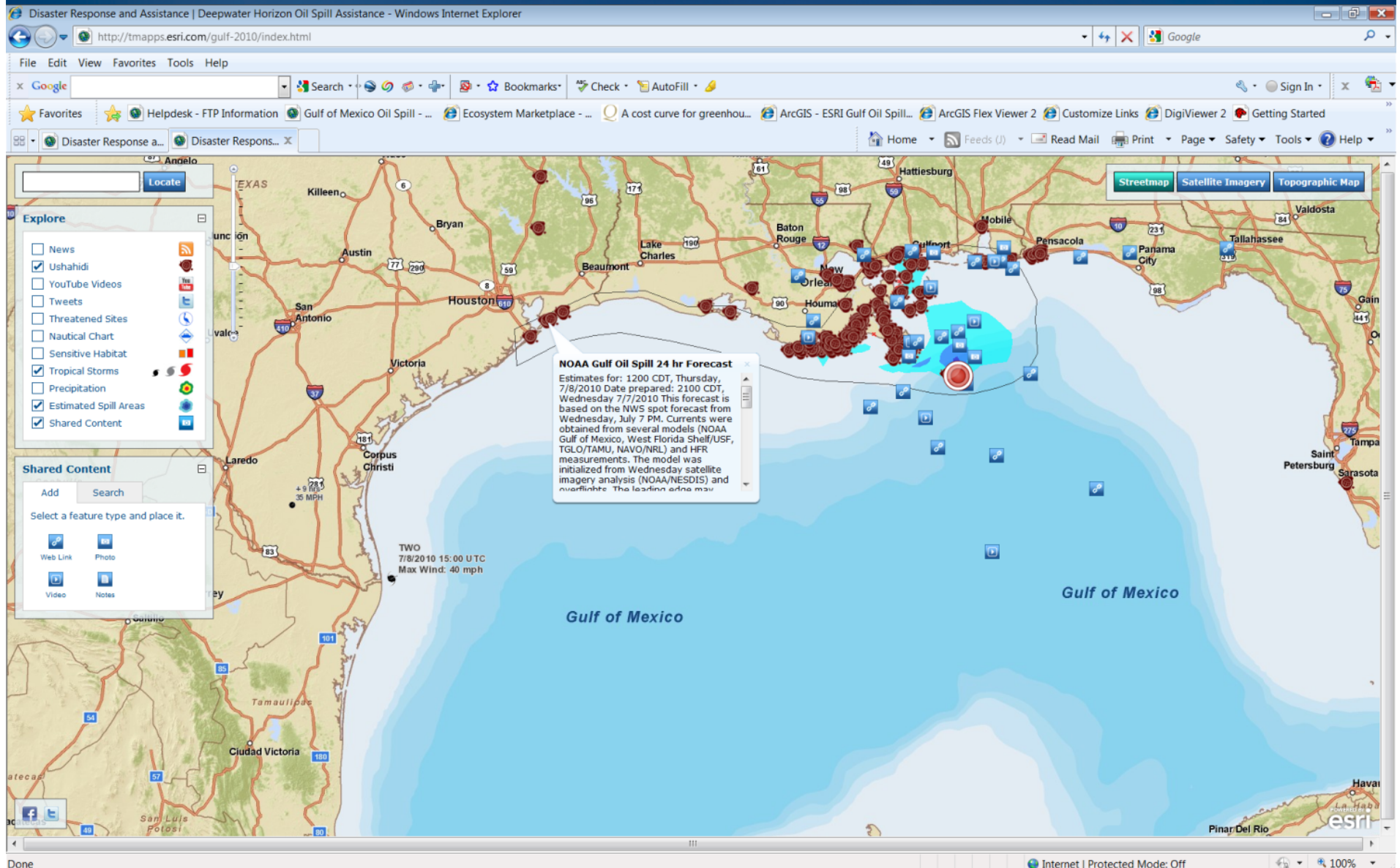
Managing New Data Types - Videos/Photos/Messages

The image is a composite of three elements illustrating the 2010 Gulf of Mexico oil spill:

- Top Left:** A screenshot of a web browser window showing the "Gulf of Mexico Oil Spill - Maps & Satellite Images" page. The page title is "Gulf of Mexico Oil Spill Map". The text describes the explosion on the Deepwater Horizon rig on April 20, 2010. A map of the Gulf of Mexico is displayed, showing the spill location near the coast of Louisiana. A sidebar on the left lists various map features like "News", "Ushahidi", "YouTube Videos", "Tweets", "Threatened Sites", "Nautical Chart", "Environmental Sensitivity", "Sensitive Habitat", "Estimated Spill Areas", and "Shared Content".
- Bottom Left:** A video player showing a large fire, likely the Deepwater Horizon rig. The text "MISSING IN OIL RIG INFERNO" and "EXPLOSION IN GULF OF MEXICO" is visible.
- Bottom Right:** A photograph of a person wearing a white protective suit and blue gloves, holding a large, dark, oily ball of sediment, likely from the spill.

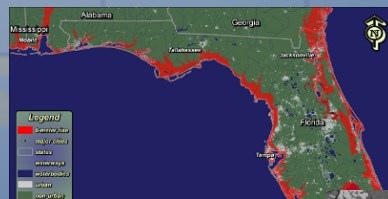
Arrows point from the map in the top left to the video player and the sediment ball, indicating the connection between the spill location and the resulting fire and environmental damage.

....With Authoritative and Crowd-sourced Data



Whether Climate *Change* Or Climate *Variability*: Regardless... Something is happening in our Place

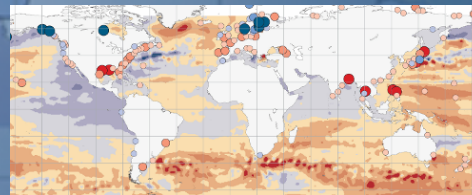
Sea Level Rise Modeling
Florida



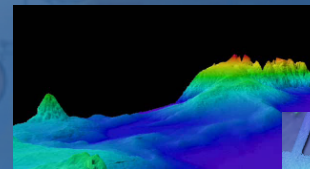
New York



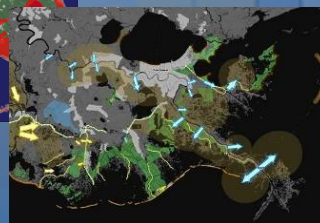
Sea Level Change
Global



Continental Shelf
Portugal



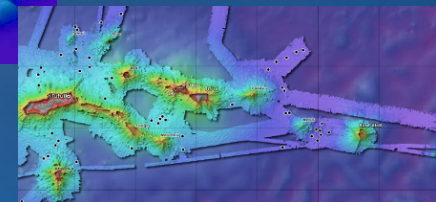
Coastal Zone Planning
Louisiana



Vegetation Trends
Arctic



Oceanographic Studies
American Samoa



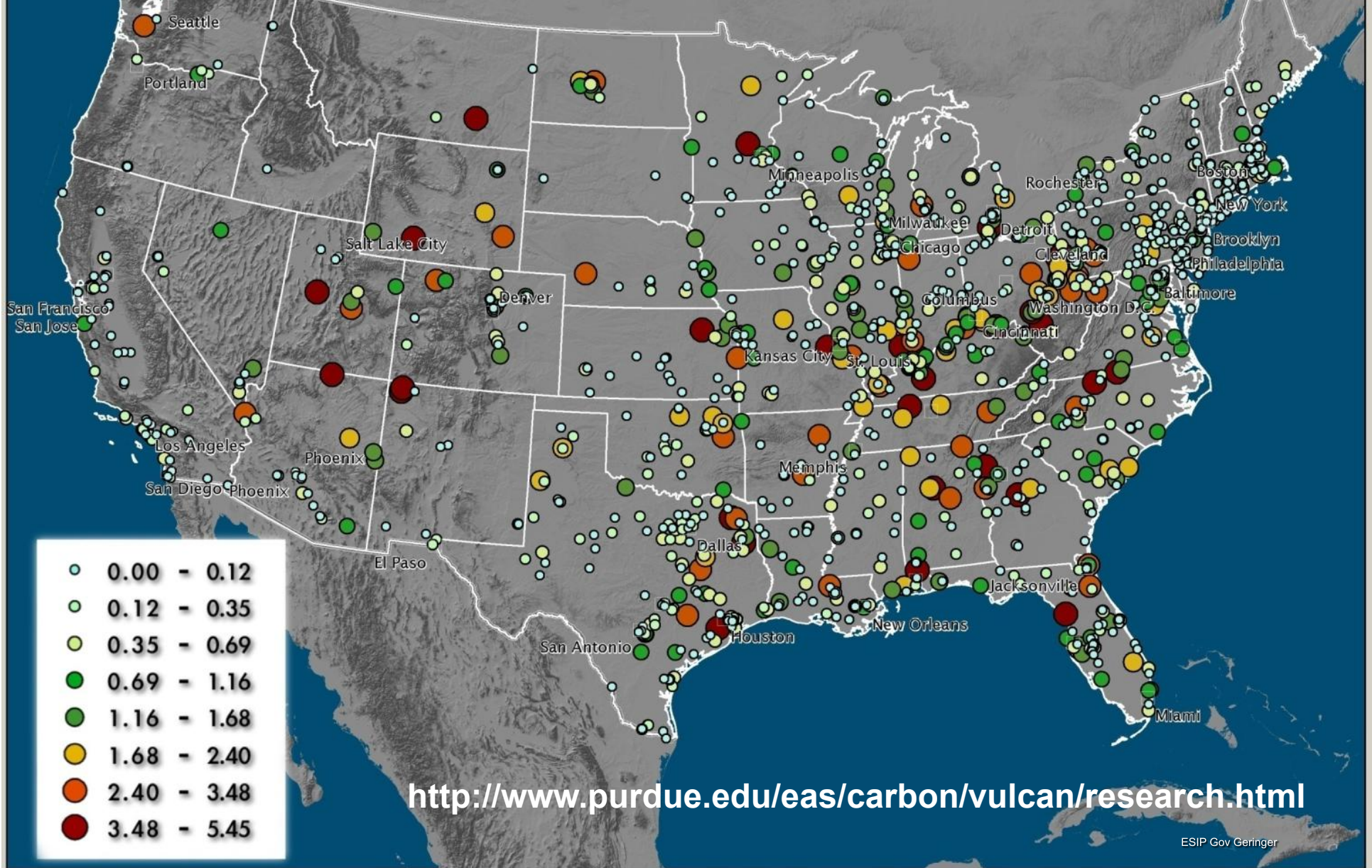
Climate change and clean energy are complex issues. The issue and potential solutions are controversial

- temperature increases and heat waves,
- sea-level rise,
- changed precipitation patterns,
- regional droughts,
- impacts on habitat and wildlife including wildfires, retreating glaciers, early snowmelt and altered timing and amount of river flows.
- These changes have impacts on
 - public health,
 - energy,
 - water quality and supply,
 - transportation,
 - agriculture, and
 - Ecosystems
 - Society

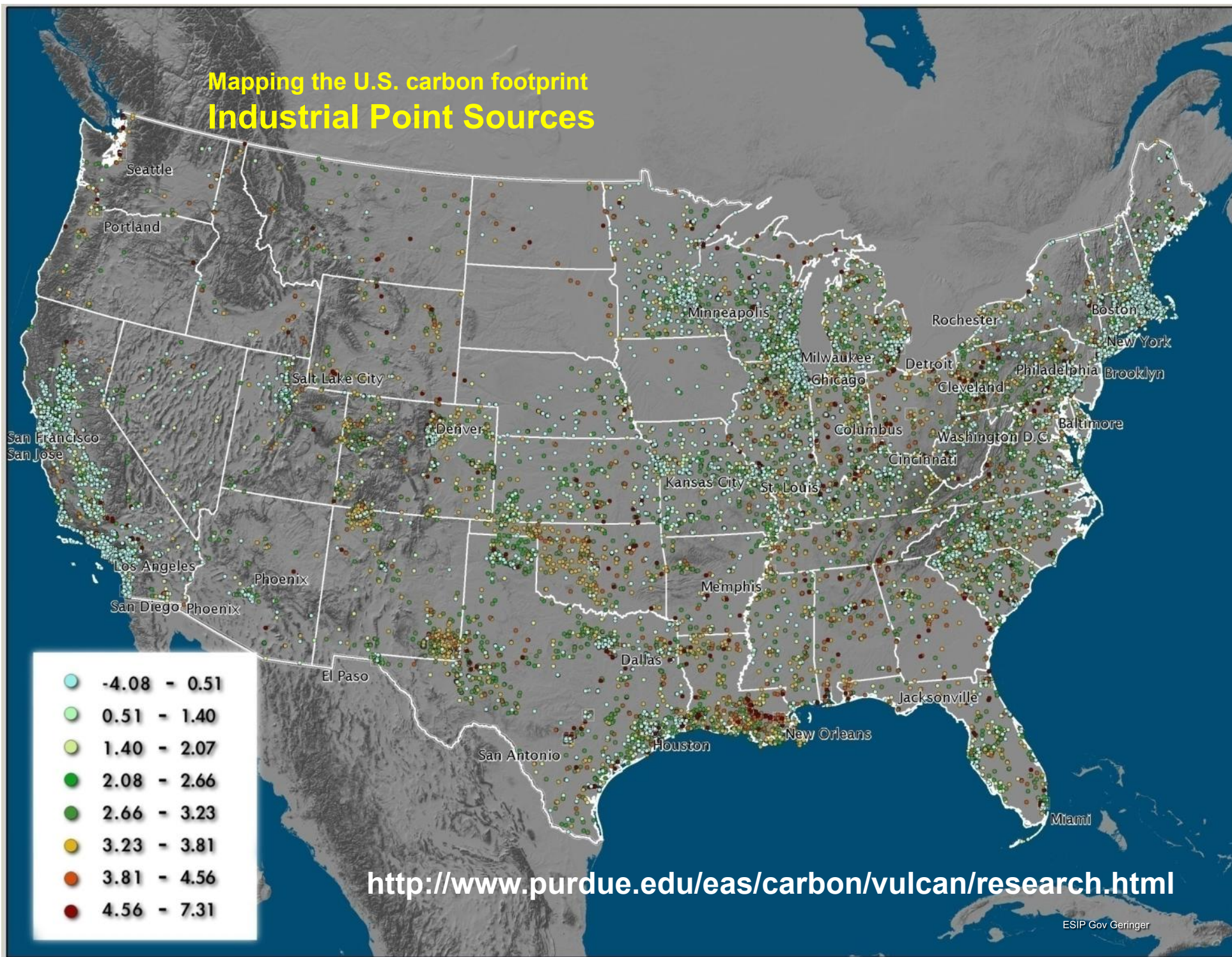
Issue – Greenhouse Gas Emissions

- **Problem** – GHG reduction is the focus of climate mitigation initiatives
- **Solution/Options** – Model the situation. Plan transportation needs to minimize of GHG's. Develop alternative energy sources, change work and leisure patterns
- **GIS** – provides a platform for adaptive modeling of alternatives
- **Examples**

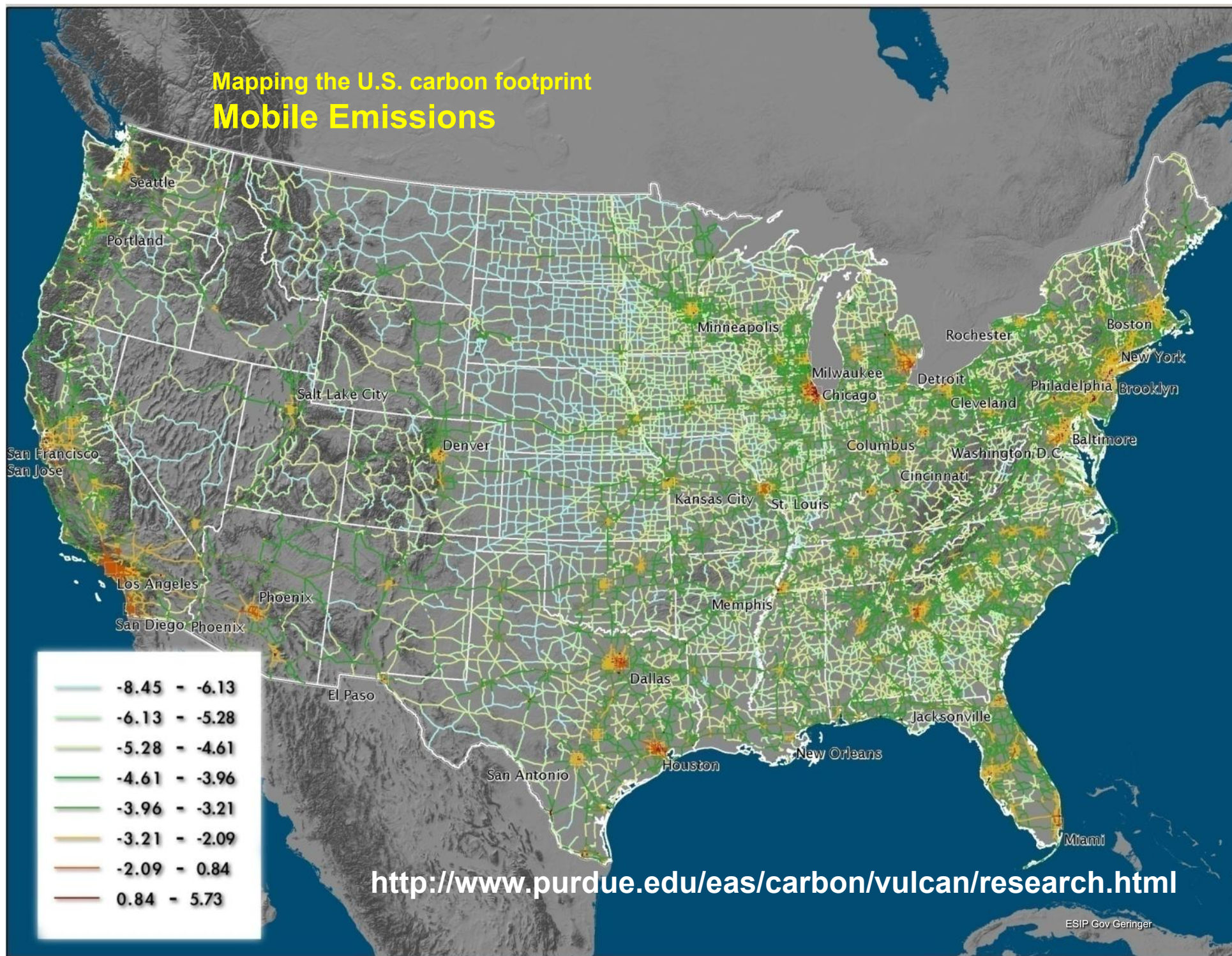
Mapping the U.S. carbon footprint
Major Power Producers
Magnitude of CO2 Emissions



Mapping the U.S. carbon footprint Industrial Point Sources

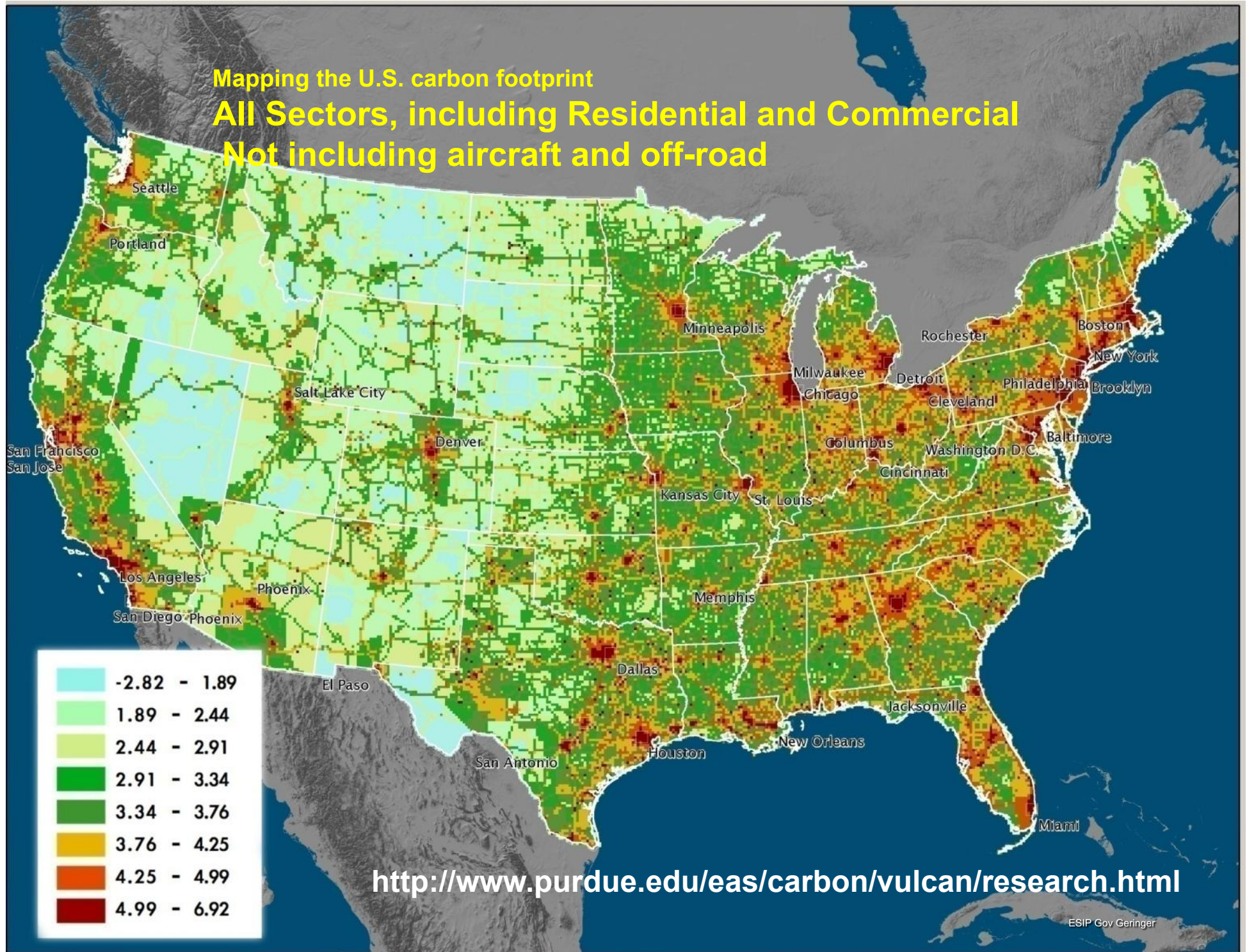


Mapping the U.S. carbon footprint Mobile Emissions



<http://www.purdue.edu/eas/carbon/vulcan/research.html>

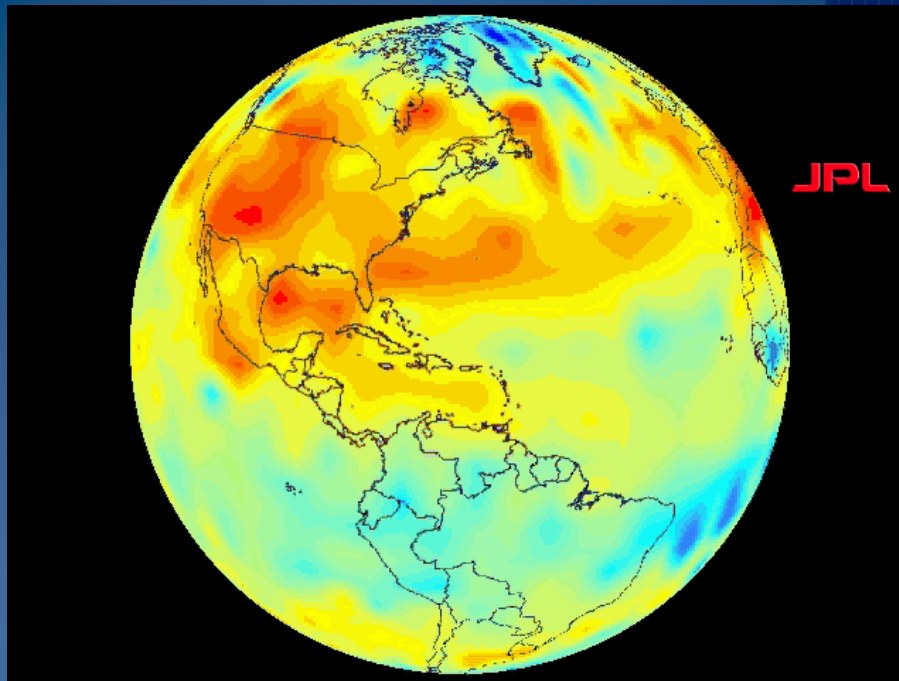
Mapping the U.S. carbon footprint
All Sectors, including Residential and Commercial
Not including aircraft and off-road



We Need a Science and Technology Approach

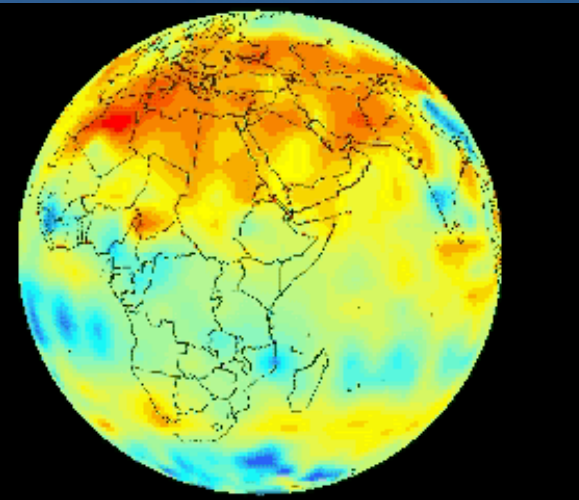
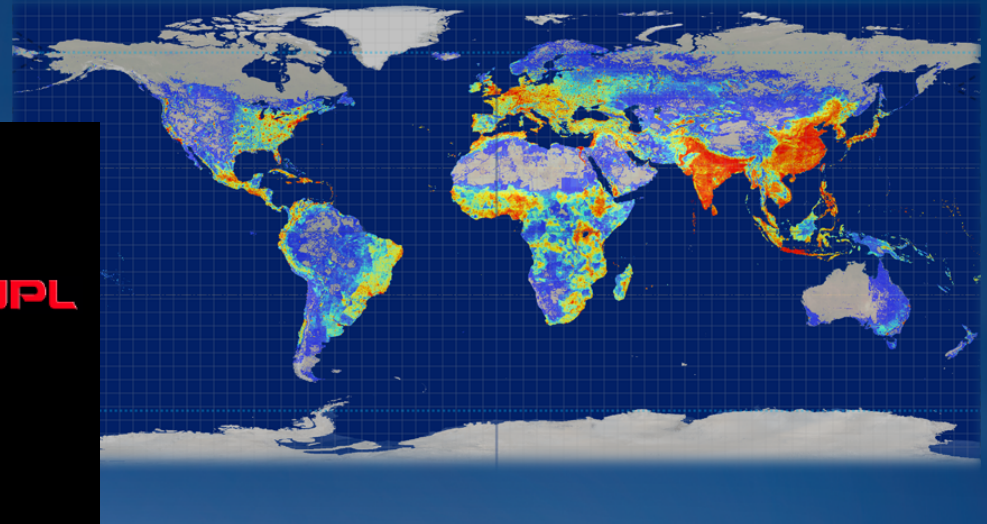
A Data and Technology Framework that Lets Us Understand Inter-connectnedness

CO₂ Emissions in the Atmosphere

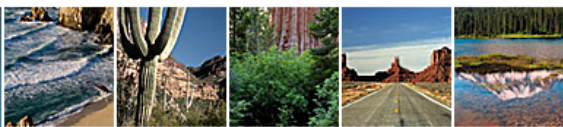


Western Hemisphere

Population Density



Europe & Africa



Western Climate Initiative

[ABOUT THE WCI](#) ♦ [PROGRAM DESIGN](#) ♦ [EVENTS](#) ♦ [NEWS & UPDATES](#) ♦ [DOCUMENTS & RESOURCES](#)

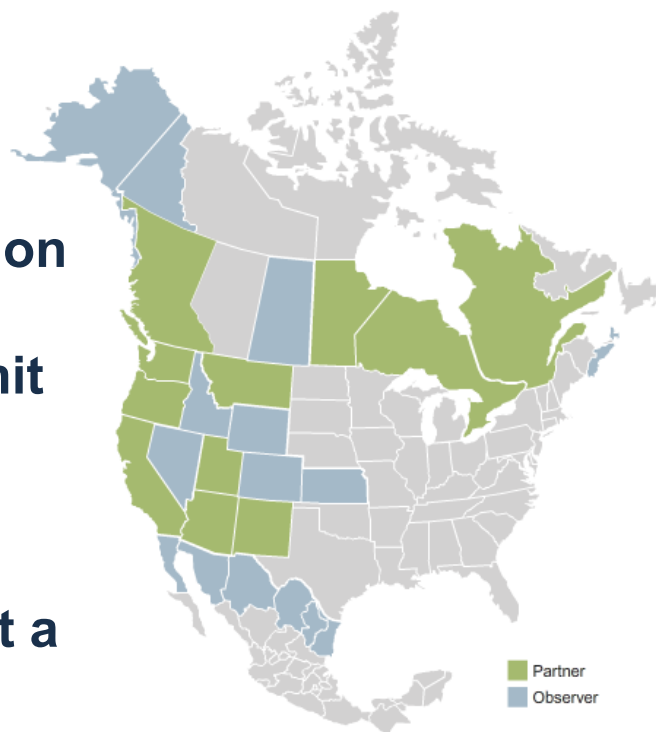
ABOUT THE WCI

- ⇒ Organization
- ⇒ WCI Leadership
- ⇒ WCI Partners
- ⇒ WCI Partners and Observers Map
- ⇒ Climate Action Plans
- ⇒ History
- ⇒ Mailing List

The WCI is a collaboration of independent jurisdictions who commit to work together to identify, evaluate, and implement policies to tackle climate change at a regional level.

WCI Partners and Observers

Click on participating states and provinces to view their climate sites.



Western Governors' Association

Climate Adaptation Priorities for the Western States: Scoping Report

June 2010

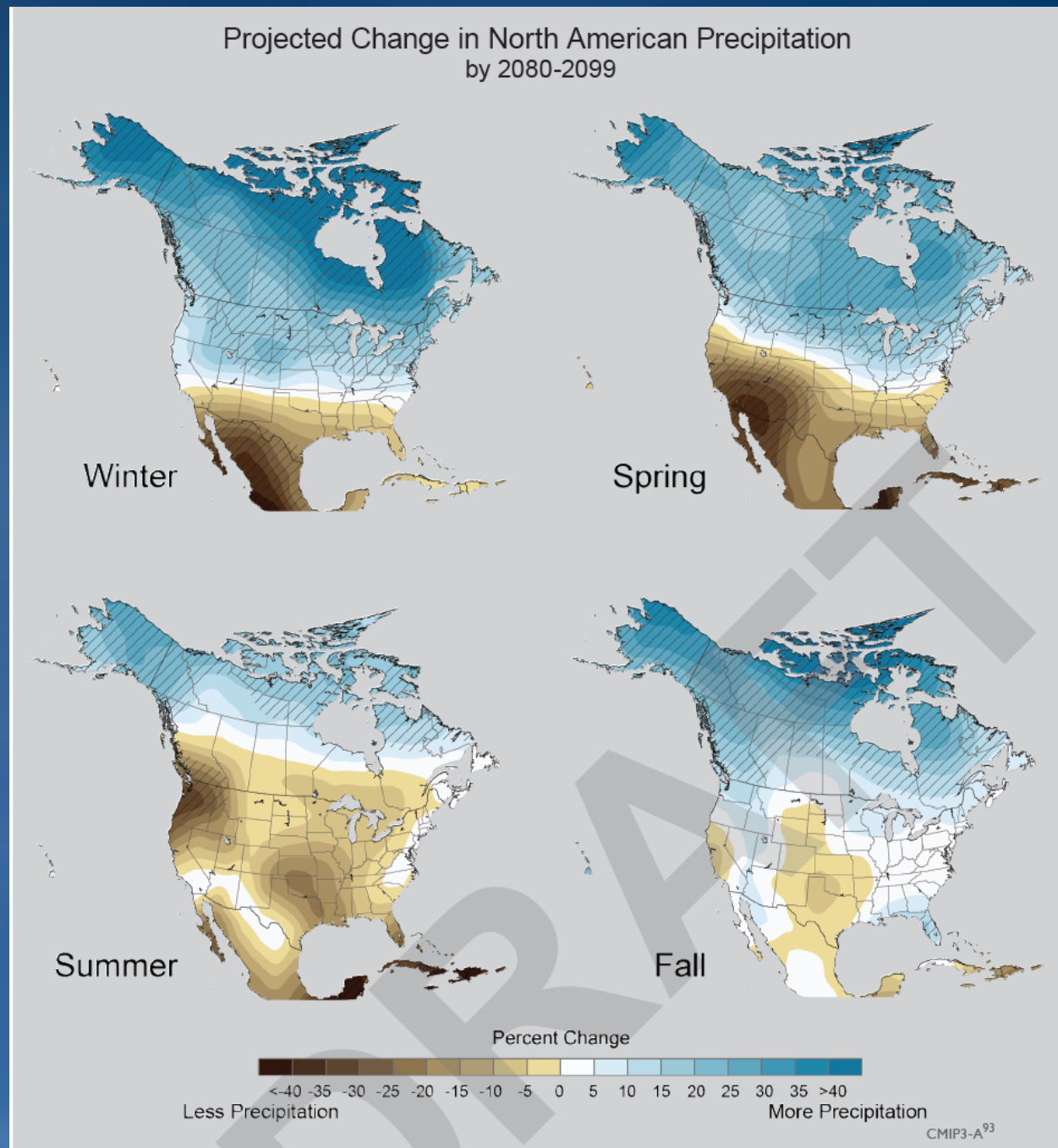


ESIP Gov Geringer

Issue – Water Supply Becoming Inadequate

- **Problem** – Increased population will outpace the available water supply
- **Solution** – Develop new sources, enable conservation, determine priorities for allocation
- **GIS** – Provides a platform for adaptive modeling of alternatives

Water - Precipitation Trends



North American Drought Monitor

November 30, 2010

Released: Wednesday, December 15, 2010

<http://www.ncdc.noaa.gov/nadm.html>

Analysts:






Canada - Richard Rieger
Trevor Hadwen
Dwayne Chobanik

México - Adelina Albanil
Reynaldo Pascual
Fernando Romero*


U.S.A. - Rich Tinker

(*responsible for collecting analysts' input & assembling the NADM map)

Drought Intensity:

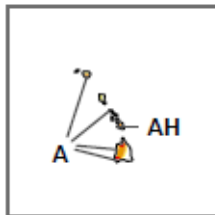
-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

Drought impact types:

 Delineates dominant impacts

A = Agriculture

H = Hydrological (Water)

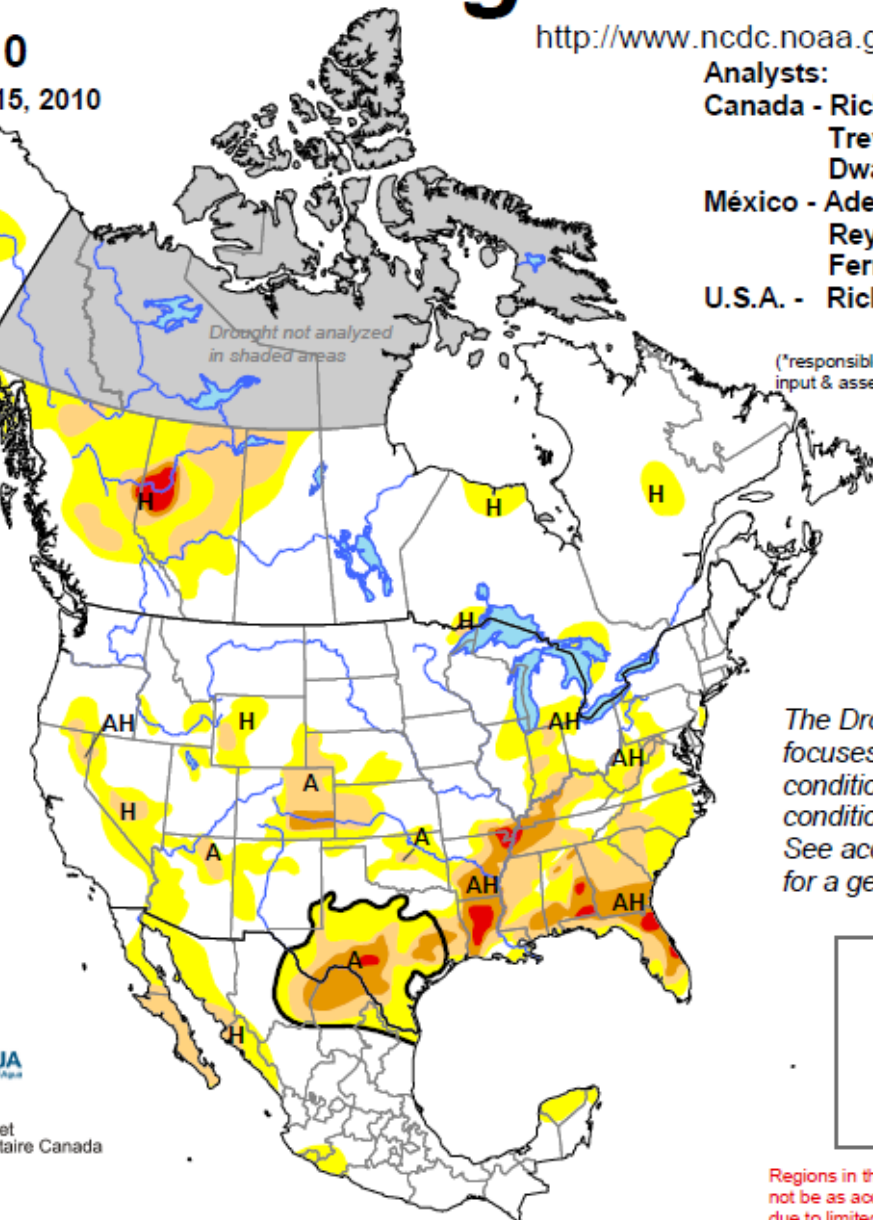


Agriculture and
Agri-Food Canada

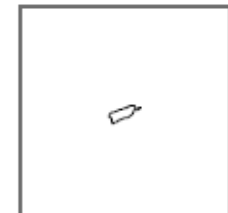
Environment
Canada

Agriculture et
Agroalimentaire Canada

Environnement
Canada

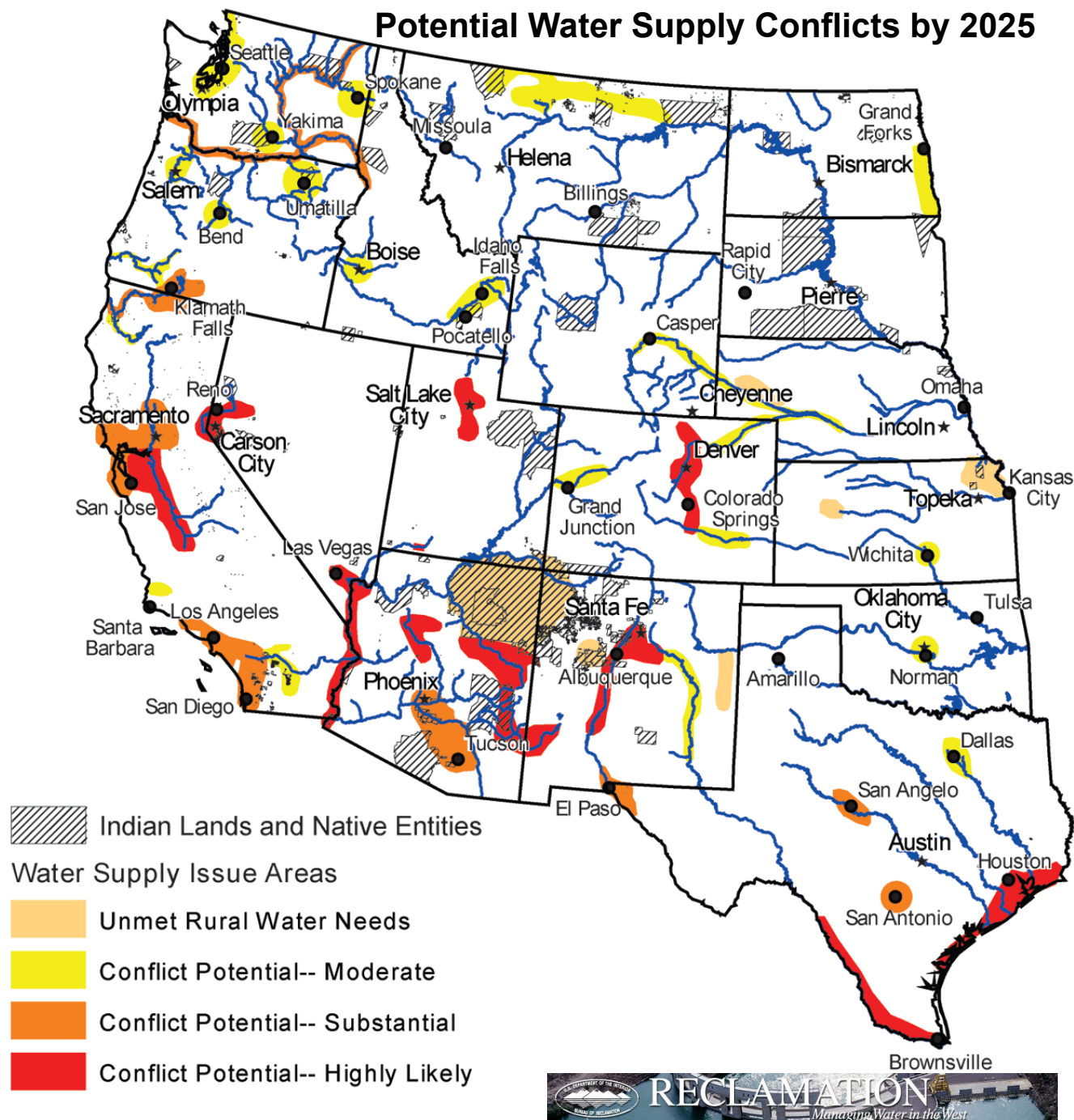


The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text for a general summary.



Regions in the northern Canada may not be as accurate as other regions due to limited information.

Potential Water Supply Conflicts by 2025



water availability and seasonal stress will lead to greater competition among agricultural, urban, industrial, and ecosystem water needs

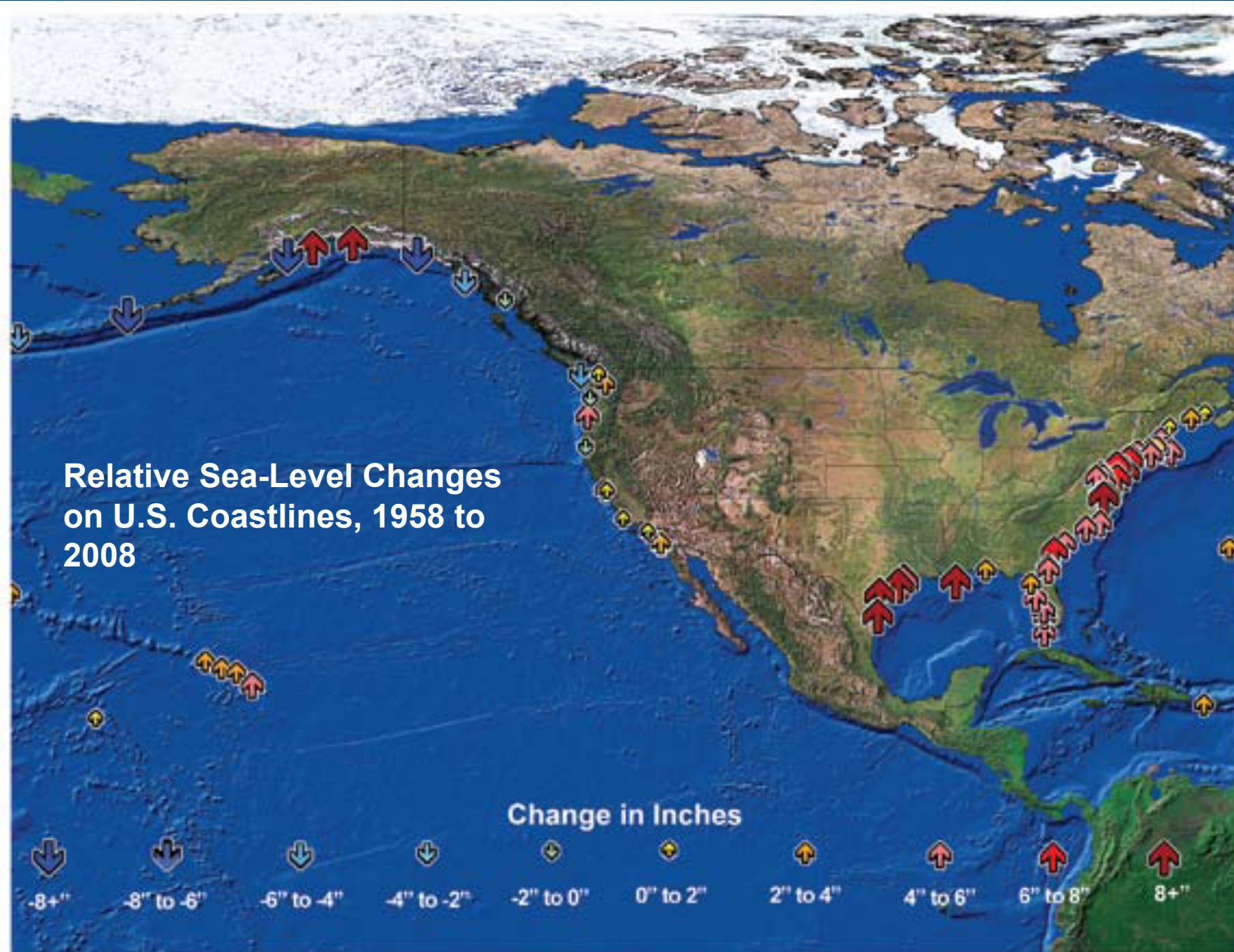


Water Needs and Strategies for a Sustainable Future: *2010 Progress Report*



Western Governors' Association ♦ June 2010

Relative Sea-Level Changes on U.S. Coastlines, 1958 to 2008





WEST COAST GOVERNORS' AGREEMENT on OCEAN HEALTH

CALIFORNIA OREGON WASHINGTON

[Home](#)[News](#)[Actions](#)[Action Teams](#)[Documents](#)[Meetings](#)[Lead Agencies](#)[Contact Us](#)

Welcome



"Just as our western states have started to work together to fight global warming and protect our air, we now join forces to make sure we are doing everything in our power to maintain clean water and beaches along our coast."

- Governor Schwarzenegger

"Our oceans provide critical economic, environmental and social benefits to the Pacific Coast states. Today's historic agreement will mean clean water, healthy oceans and a better future for our children."

- Governor Kulongoski

"Our oceans are home to a great diversity of marine life and clean beaches and oceans are vital to West Coast fishing communities, recreation and tourism. We know that isolated local efforts cannot adequately address the breadth of degradation to our oceans. By cooperating, our three states will combine our resources and influence to make a real difference in the fight to clean and protect the oceans."

- Governor Gregoire

NOAA Regional Ocean Partnership Grant Funding Opportunity

You may now view the final funding proposals submitted by the WCGA:

- [Area 1: Achieving Sustainable Coastal Communities by Advancing Regional Ocean Priorities and Coastal and Marine Spatial Planning on the West Coast](#)
- [Area 2: Administration of the West Coast Regional Ocean Partnership](#)

The time to provide general comments or ideas for the WCGA's proposal to the Regional Ocean Partnerships Funding Program (ROPFP) has passed. You can [view all public comments received here](#).

You can view the [presentation PDF](#) and also the [full video](#) from the Nov. 30 web meeting "Concepts Informing the West Coast Response to the Federal Funding Opportunity."

The WCGA hosted workshops in three states:

- San Francisco, California: Friday, November 12, 2010; 11 AM - 5 PM
- Newport, Oregon: Monday, November 15, 2010; 10 AM - 4 PM
- Olympia, Washington: Tuesday, November 16, 2010; 10 AM - 4 PM

Workshop Summaries are available for [California](#) | [Oregon](#) | [Washington](#)

For full updates on the ROPFP, please see the [News page](#).

West Coast Governors' Agreement on Ocean Health

On September 18, 2006 the Governors of California, Oregon and Washington

Eight Final Work Plans

AGREEMENT on OCEAN HEALTH
ESIP Gov. Geringer



Governors' South Atlantic Alliance

North Carolina • South Carolina • Georgia • Florida

[Our Work](#)

[Agreement](#)

[Documents](#)

[Funding](#)

[Links](#)

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Priority Issues and Technical Teams

- ▶ [Healthy Ecosystems](#)
- ▶ [Working Waterfronts](#)
- ▶ [Clean Coastal and Ocean Waters](#)
- ▶ [Disaster-Resilient Communities](#)
- ▶ [Technical Teams](#)

Our Mission Statement

Implement science-based policies and solutions that enhance and protect the value of coastal and ocean resources of the southeastern United States to support the region's culture and economy now and for future generations.

[South Atlantic Alliance Action Plan Finalized](#)



North Carolina Governor [Bev Perdue](#)

This Alliance will enable us to work together to protect our ocean environment and the health and economic well-being of the people dependent on those resources.



South Carolina Governor [Mark Sanford](#)

The Alliance represents an important step toward enabling these states to pool their resources and better address the vital issues of economic development and environmental stewardship in the coming years.



Georgia Governor [Sonny Perdue](#)

The South Atlantic Alliance provides a unique opportunity to collaborate with neighboring states on mutual priority issues that are vital to sustaining our rich coastal heritage and growing economy.



Florida Governor [Charlie Crist](#)

This new initiative will allow our scientists, decision-makers, stakeholders, visitors and citizens to answer the call to work collaboratively to protect the South Atlantic region's resources.

**Governors'
South Atlantic Alliance**
Carolyn Boltin-Kelly
Deputy Commissioner
SCDHEC Ocean and Coastal Resource
Management
1362 McMillan Ave., Ste. 400
Charleston, SC 29405
P: 843-953-0225
F: 843-953-0201
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Site development, maintenance & hosting – [South Carolina Sea Grant Consortium](#)



GOVERNORS' ACTION PLAN II

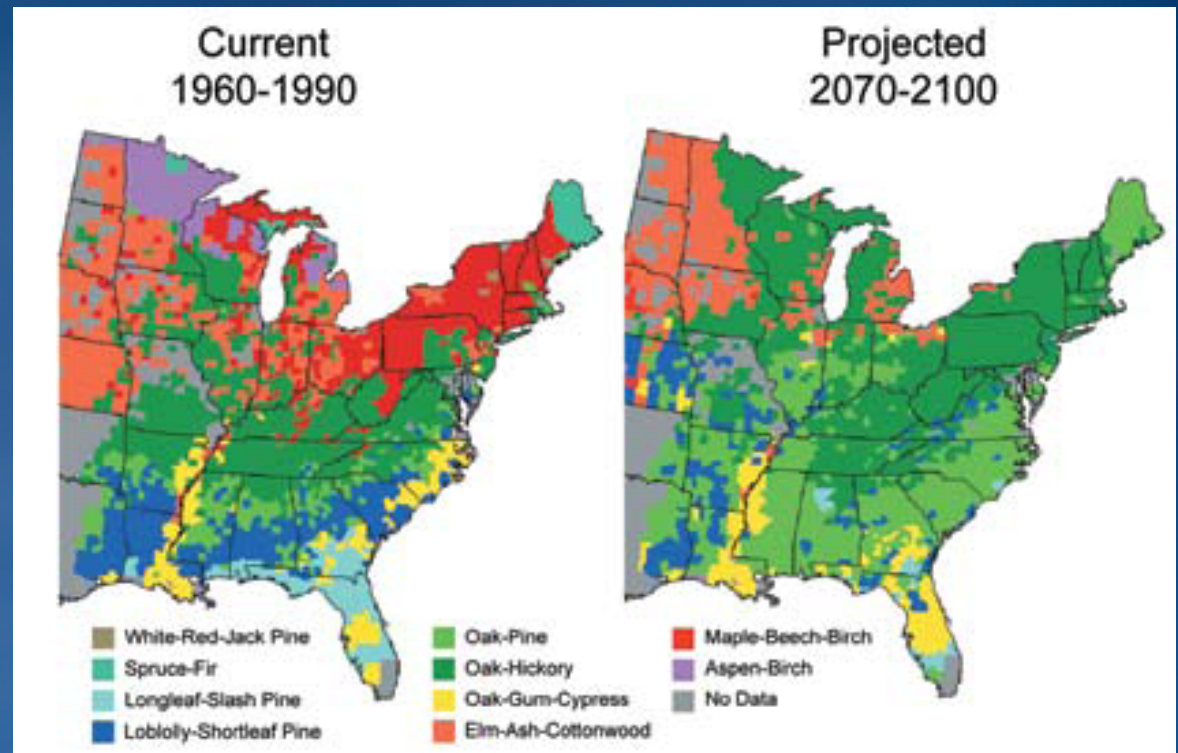
For Healthy and
Resilient Coasts

2009 - 2014

Habitat, Species Migration -



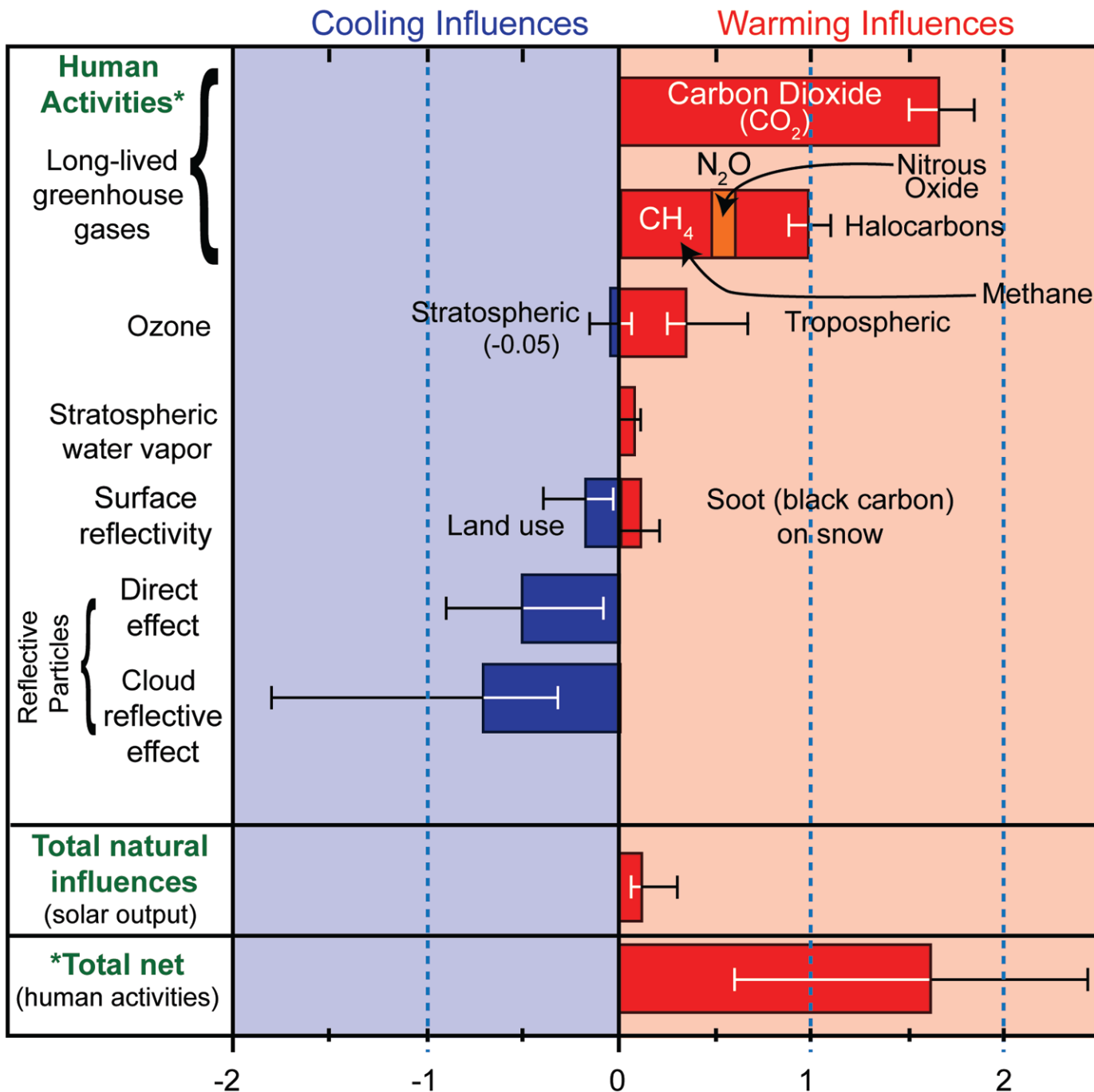
Changes include shifts in species ranges, fire, pests, invasive plants, timing of seasons, and animal migration



Projected Shifts in Forest Types

Expectations of Elected Officials

- Decisions and actions will be made based on an increasing range of **uncertainty** about predicted outcomes
- Will require a **greater tolerance for risk** by risk-adverse elected officials. Will the public be willing to allow greater tolerance for failure?
- Risk could be managed through experimentation. Will the resulting high levels of investment and potential loss, work without the **trust and confidence** of the public?
- Dealing with higher levels of uncertainty requires more **transparency** in how and why public decisions are being made.
- Will require **greater public understanding of and tolerance for** the potential risks at hand.

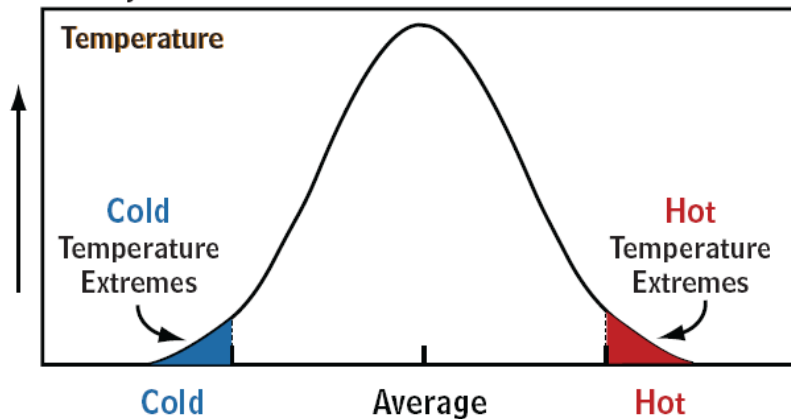


Forster et al.³

Illustration of Changes in Averages and Extremes in Temperature and Precipitation

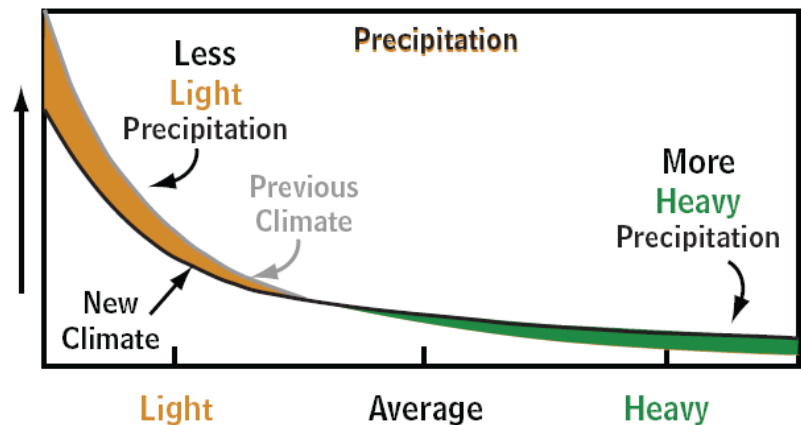
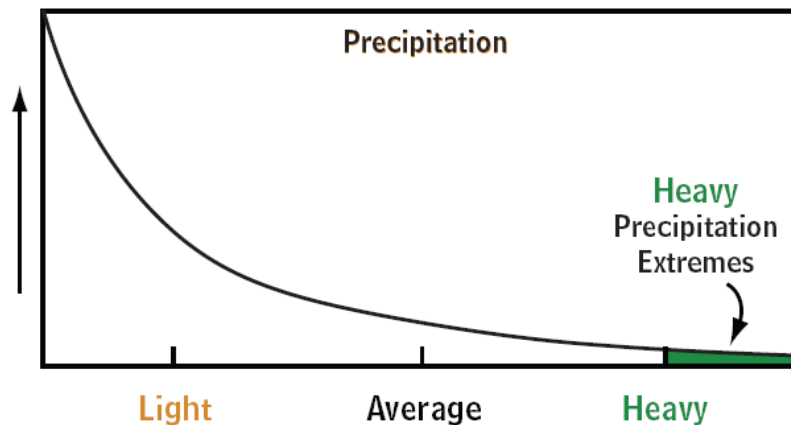
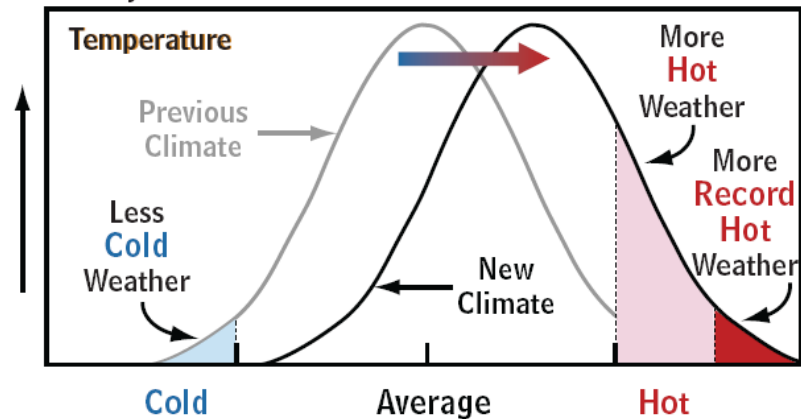
What Is an Extreme?

Probability of Occurrence



Increase in Probability of Extremes in a Warmer Climate

Probability of Occurrence



Source: Thomas R. Karl and others, eds., *Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research* (Washington, D.C.: Department of Commerce, National Oceanic and Atmospheric Administration, National Climate Data, 2000).

Knowledge Mitigates Uncertainty



Discovering and Accessing Information for Policy Leaders Using Web Services – Base Maps, Resources, Applications On-Line

Federated Organization

- Organized Around Missions
 - Applications / Data are Discoverable
 - Locally Managed
- Shared Data
 - Web Services
 - Replicated (Data Warehouse)

Departmental
Integrity



Supporting Individual
Missions

Providing
Generic Services

Economic
Development

Environmental

Transportation

Public Safety

HHS

Web Services

Services
Enterprise
Data
Warehouse

Replication

Enterprise
Server



... An Enterprise Resource Center...

Earth Observation, Imagery, Geography -

***When Integrated - They Become Knowledge, To Enable Decisions
They are Inter-dependent, They Let Us Visualize Inter-relationships***

- Technology
- Methods
- Organization
- Data
- Processes



Enabling each other through the Digital Earth

Education

United States economic growth in the 21st century will be driven by our nation's ability to both generate ideas and translate them into innovations



Helping Students Think and Learn
Through Geography

The bottom line for global competitiveness is raising our innovation potential



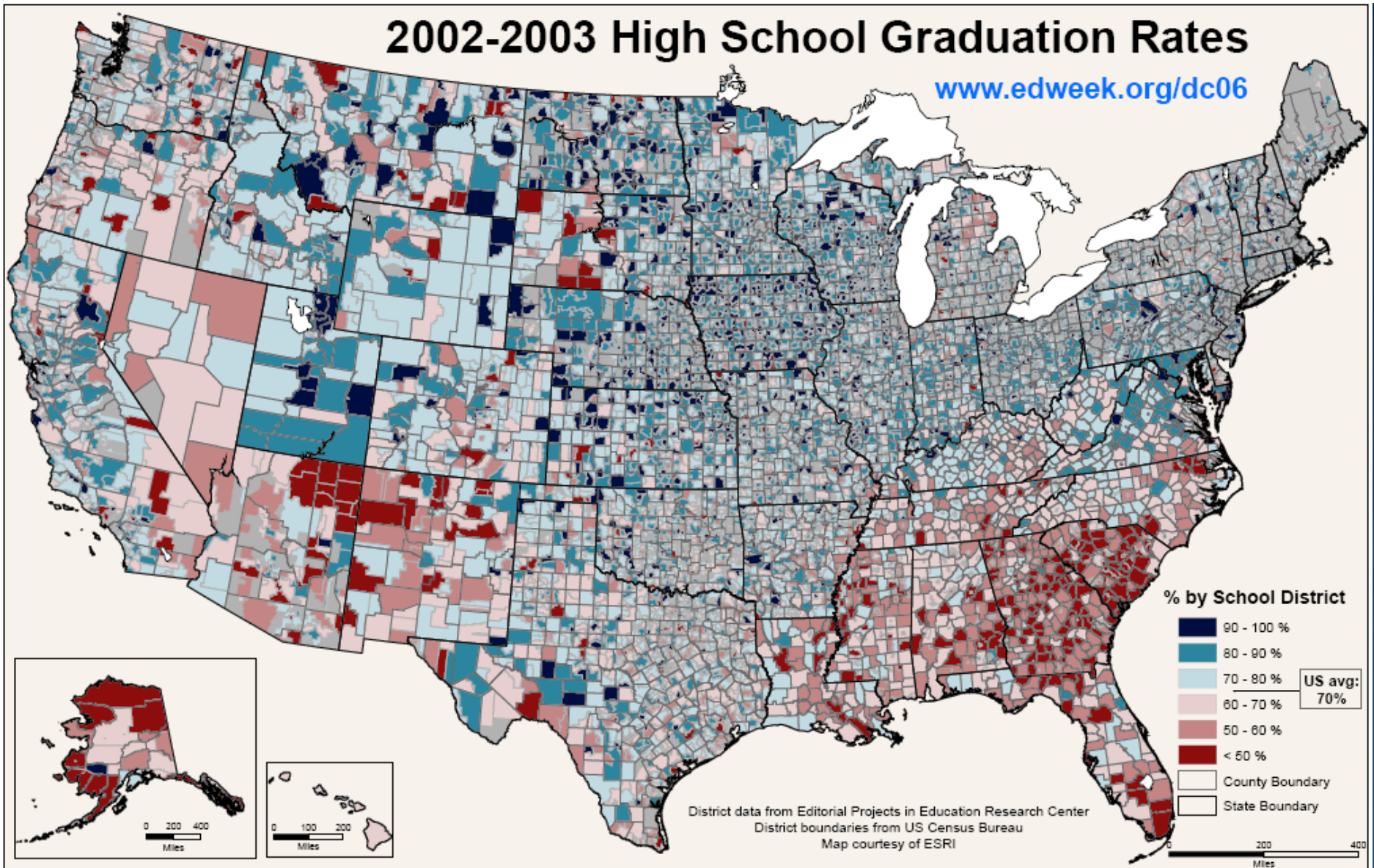
There is no greater innovation than the development of a young mind

ISSUE: Education

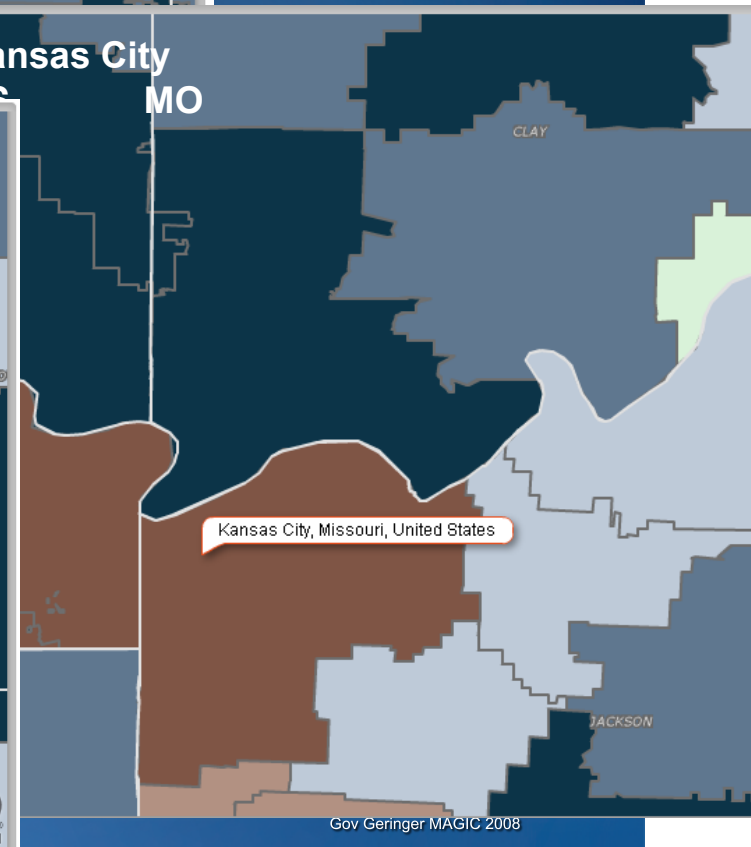
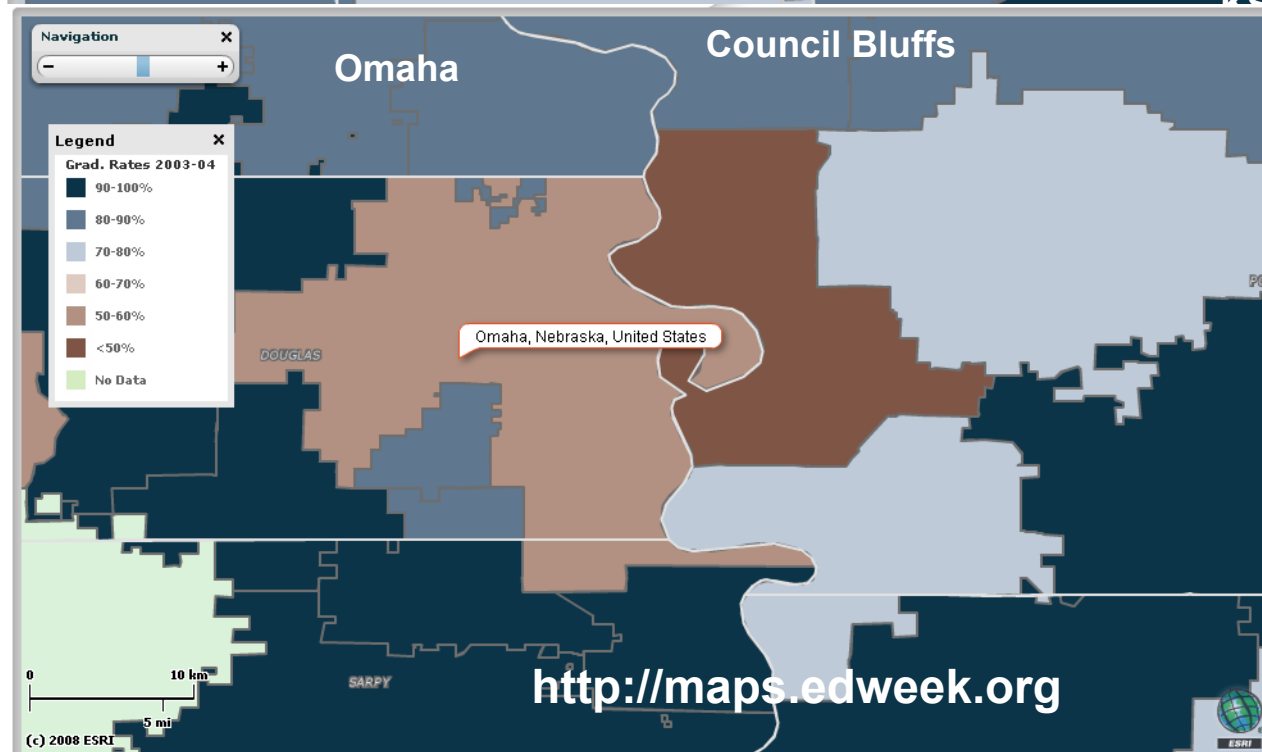
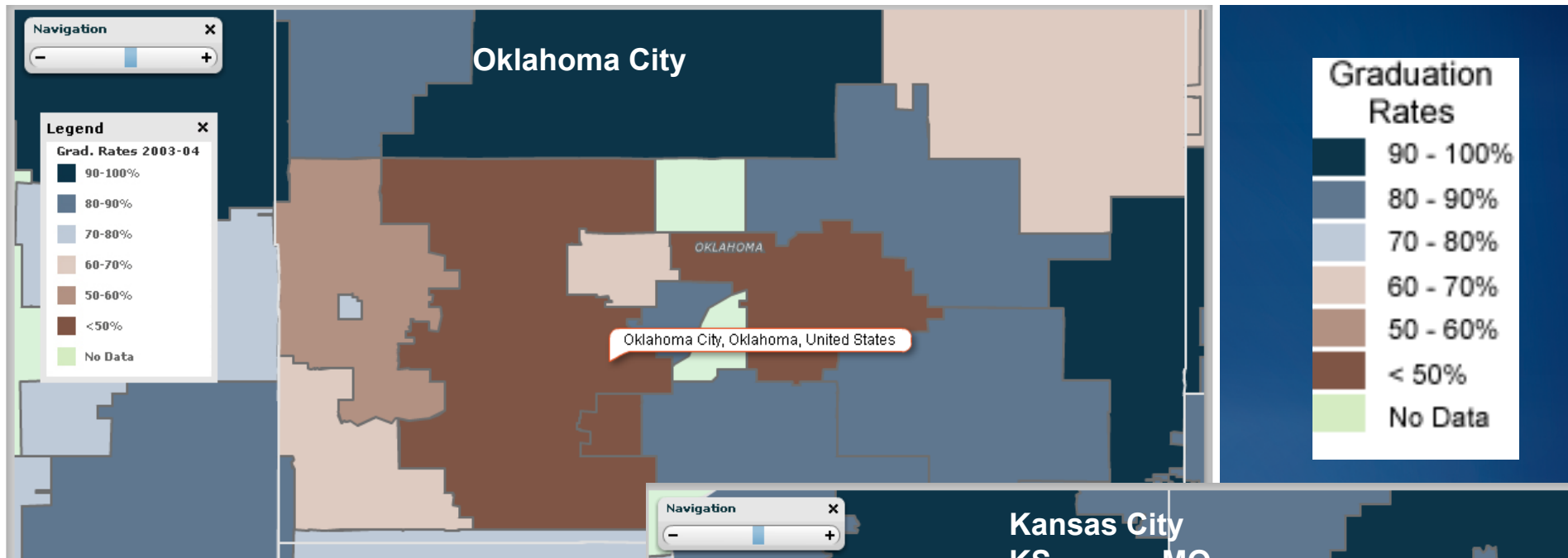
- **PROBLEM** – Declining interest by U.S. students with increased need to compete globally
- **SOLUTION** - Understand combination of impacts. Improve H.S. graduation rate, college attainment
- **EXAMPLE** – Identify top priority areas
- **SCIENCE AND TECHNOLOGY** – Use visualization to make the point

2002-2003 High School Graduation Rates

www.edweek.org/dc06

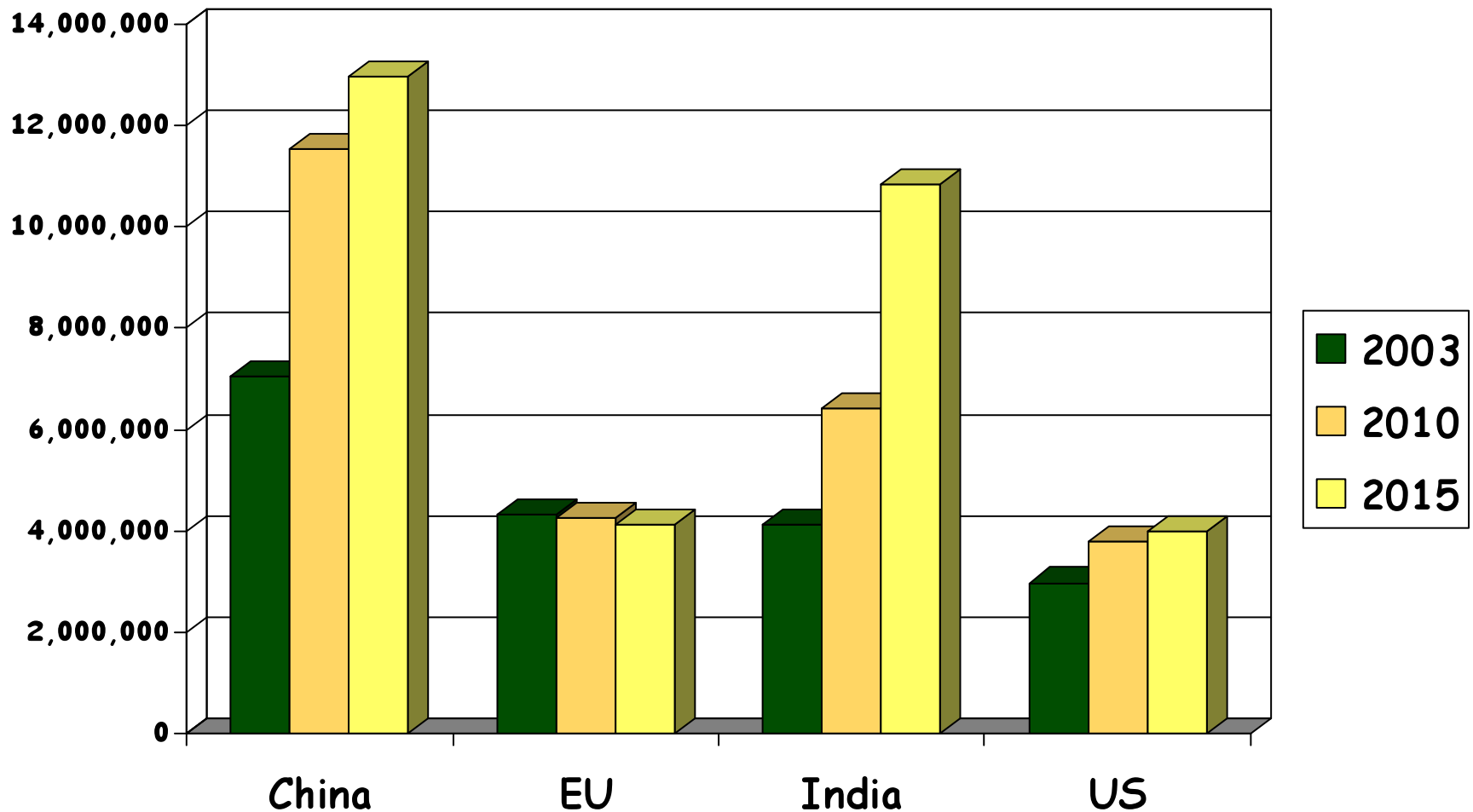


http://www.edweek.org/media/ew/dc/2006/usmap_districts.pdf

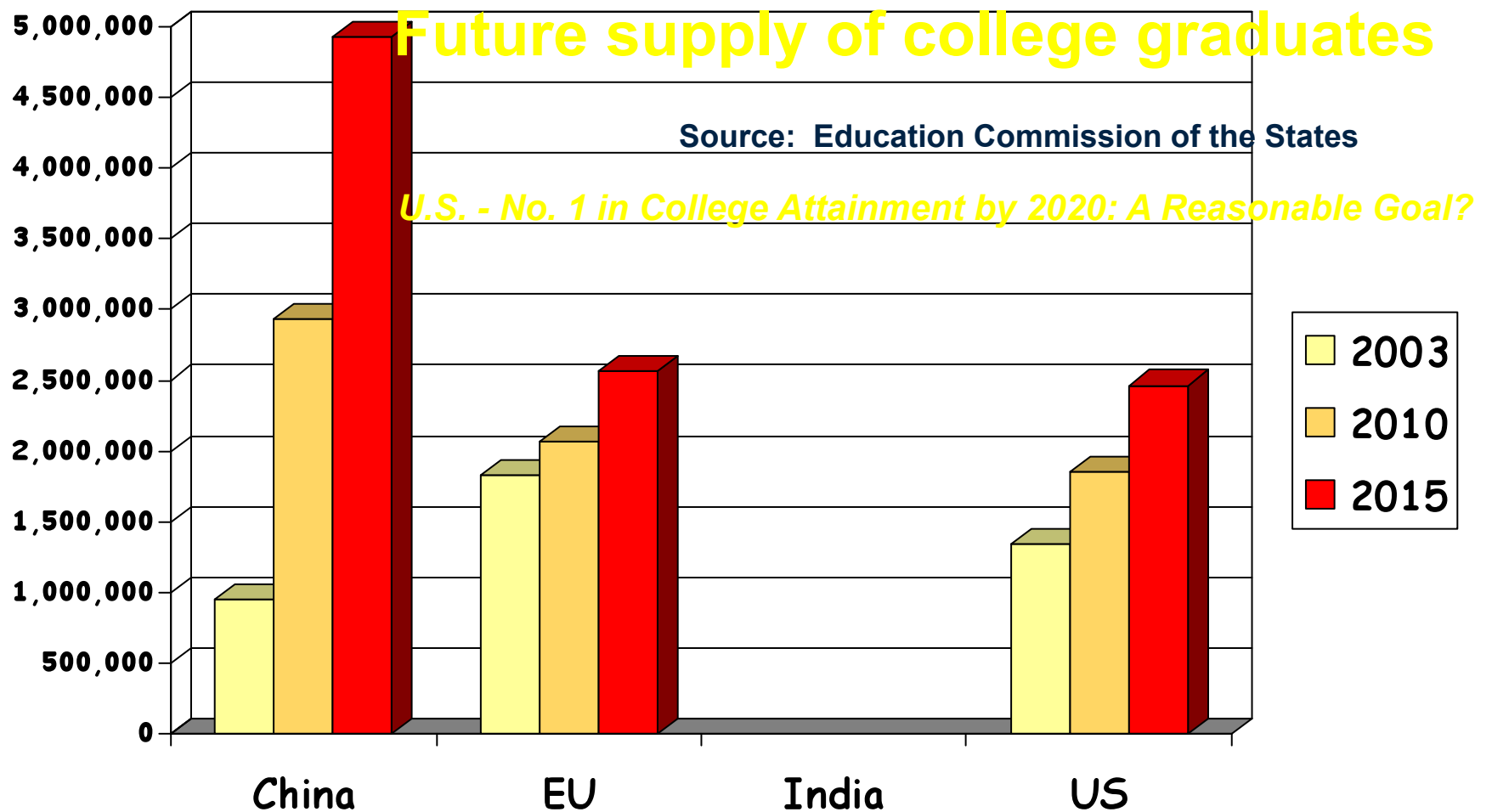
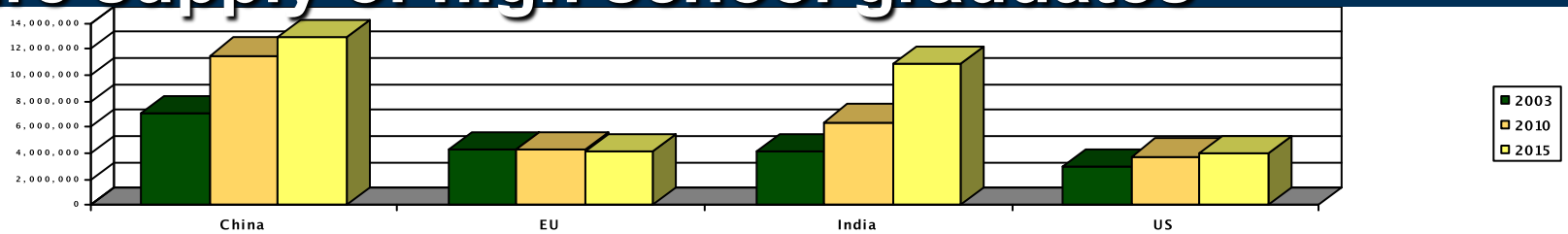


Future Supply of High School Graduates

Source: Education Commission of the States



Future supply of high school graduates



Science and Technology: Acquiring Data To Change. . .

How We Organize
& Reason . . .



Spatially Integrated
Thinking

How We Collaborate . . .



Shared Geographic
Knowledge

How We Communicate . . .



A Geospatial
Language

Focused By Policy
Enabled By Purpose

.... Are We Providing What is Needed?

DATA Brings Value to Policy

- Traditional Value
 - Space, time, place
 - Visualization
- Policy value
 - Interagency – multi organizational/stakeholder
 - Cross jurisdictional
 - Adaptive decision making

Getting to the Policy Makers



At a point where you can still affect policy

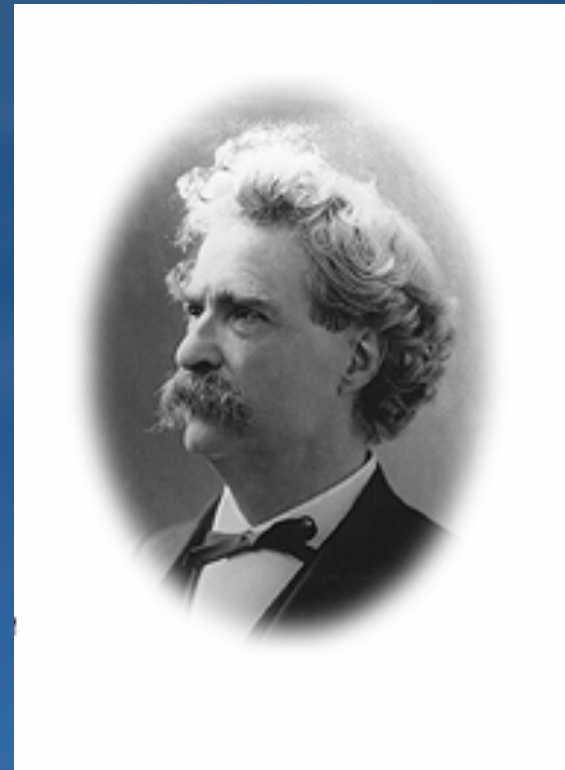
To Engage Your Policy Leaders

- Put a face on it – relate it to PEOPLE
- Let visualization do the talking
- Build relationships; become a trusted advisor
- Get to know the staff that influences the policy makers

Ten Minutes at the Top

- Make the first thing you say the last thing you want me to remember
- Be prepared – if you can't predict the outcome of the meeting ahead of time, you probably shouldn't be there in the first place
- Use a high priority issue of the day to make your point

**“Few things are harder to put
up with than a good example.”
-Mark Twain**



Typical Top 10 Issues

- **The Budget – Crunch is an Understatement**
- **Health Care**
 - The aging population
 - Medicaid
 - Health Reform/ Health IT
- **Economy, Jobs, Competitiveness, Recovery**
- **Education**
- **Energy/Environment – Cost , Alternatives and Climate Change**
- **Disasters, Weather (Fire, Drought, Flood)**
- **Transportation/Infrastructure**
- **Local Government Funding**
- **Public Safety**
- **Elections**
- **Redistricting**

10 Minutes at the Top

- Keep it simple
- Can you make your case in the time available?
- Can you call an audible if there is an interruption that shortens your time?
- Use one or two good anecdotes that can be re-told

- **Never assume that your audience understands what you are talking about.**
- **Stay away from buzzwords, acronyms, professional lingo**
- **Don't overstate the case; don't embellish beyond the facts**
- **When you over-promise, you lose credibility. Under-promise, over-deliver**

- Know the person you are meeting with – background, advocacies, voting record
- If the person is a senior or top exec, stick to the *purpose* – don't get bogged down in the *process*
- Target those who will actually carry out the end result. Know the primary staffer. Find a way to give that person credit.

Tips to Recover By

- **Don't consider the outcome a referendum on yourself or your agency.**
- **Know when you are not going to sell the issue and cut your losses. Prepare for the next time when things are more in your favor.**
- **Timing is as important as timeliness**

Tips to Recover By

- **Bring something to the table. Don't expect to just take something away**
- **Think Long-term. A single loss on an issue only prepares you better for the next time**
- **Friends come and go but enemies accumulate**

Two Words Seldom Heard By Those In Public Office....

• ***“Thank You!”***



Thanks!



Jim Geringer
Wyoming Governor 1995-2003
Environmental Systems
Research Institute
jgeringer@esri.com

From the ACCC Informing Report:

- Know your audience: Learn what people (mis)understand and their information needs.
- Understand social identities and affiliations: Effective communicators often share an identity and values with the audience.
- Get the audience's attention: Use appropriate framing to make information relevant to different groups
- Use the best available, peer-reviewed science: Use recent and locally relevant research.
- Translate scientific understanding and data into concrete experience: Use imagery, analogies, and personal experiences.

- Address scientific and climate uncertainties: Specify what is known with high confidence and what is less certain.
- Avoid scientific jargon and use everyday words: degrees F rather than degrees C, *human caused* rather than *anthropogenic*
- Maintain respectful discourse: Climate change decisions involve diverse perspectives and values.
- Provide choices/solutions: Present options and discuss alternatives.
- Encourage participation: Listen to audience concerns and ideas. Don't overuse slides and one-way lectures.
- Use popular channels: Use new social media and the internet.
- Evaluate communications: Assess and revise as needed.

Statement to Commerce Secretary Locke: U.S. observational capabilities should be improved and integrated

- *Clear leadership is essential. The federal government should establish a framework with clear designation of leadership, responsibility and coordination for climate-related decisions, information systems and services, but avoid federal mandates upon the states.*
- *The American people need and deserve the most comprehensive and timely information possible about our climate. That information should be tailored to user needs, provided at space and time scales to support decision-making, be communicated clearly, and accompanied by analytical and decision support tools that allow assessment of alternatives and options.*
- *Integrated Earth observation capabilities are vital to our international*
- *competitiveness. We should not leave the gathering of information on climate change, its impacts and response options to other countries. We should lead the way as the principal partner in charting a competitive course.*